Anchorage School District

COLLEGE GATE ELEMENTARY SCHOOL ROOF REPLACEMENT

ITB 2025-805
ASD PROJECT No. 174005

DATE ISSUED: October 21, 2024

TABLE OF CONTENTS

DIVISION 0 - BIDDING AND CONTRACT REQUIREMENTS

00020	Invitation to Bid	2
00100	Instructions to Bidders	14
00200	Project Schedule Milestone Dates	1
00300	Bid Form	7
00420	Asbestos Abatement Subcontractor's Certificate of Insurance	1
00500	Owner - Contractor Agreement Form	3
00610	Bid Bond Form	3
00620	Performance Bond and Payment Bond	9
00630	Sample Forms and Certificates	40
00700	General Conditions of the Contract for Construction	66
00800	Supplementary General Conditions to the Contract for Construction	5
00820	Wage Rates	1

DIVISION 1 - GENERAL REQUIREMENTS

01005	General Requirements Relocation	3
01010	Summary of Work	4
01030	Bid Alternatives	2
01041	Project Coordination	2
01045	Cutting and Patching	3
01049	Mechanical & Electrical Coordinator	3
01050	Field Engineering	2
01060	Regulatory Requirements	1
01070	Abbreviations and Definitions	3
01090	Referenced Specifications and Standards	3
01120	Alteration Procedures	2
01200	Project Meetings	3
01300	Submittals	2
01311	Project Schedule	3
01340	Shop Drawings, Product Data and Samples	5
01 35 45	Airborne Contaminant Control	5
01370	Schedule of Values	2
01380	Construction Photographs	2
01400	Quality Control	9
01410	Testing Laboratory Services	3
01420	Special Inspections	3
01421	Structural Observation	2
01500	Temporary Facilities and Controls	3
01502	Maintenance of Traffic	1
01580	Project Sign	3
01600	Materials and Equipment	2
01610	Delivery, Storage, and Handling	3
01630	Substitution and Product Option	3
01650	Starting of Systems	2
01651	System Commissioning	10
01700	Project Closeout	3
01710	Cleaning	1

TABLE OF CONTENTS

01720	Project Record Documents	3
01730	Operation and Maintenance Data	4
01750	Closeout Forms	16
01900	Utility Location Requirements	2

DIVISION 2 - SITEWORK

02 26 00	Hazardous Materials Assessment	211
02 41 19	Selective Demolition	5
02 82 33	Removal and Disposal of Asbestos Containing Materials	32
02 88 00	Removal and Disposal of Miscellaneous Hazardous Materials	40

DIVISION 5 - METALS

05 31 00	Steel Decking	5
05 50 00	Metal Fabrications	5

DIVISION 6 - WOOD AND PLASTICS

06 10 53	Miscellaneous Rough Carpentry	4
06 16 00	Sheathing	3

DIVISION 7 - THERMAL AND MOISTURE PROTECTION

07 21 00	Thermal Insulation	3
07 24 19	Water-Drainage Exterior Insulation and Finish Systems (EIFS)	4
07 26 00	Vapor Retarders	2
07 42 43	Composite Wall Panels	5
07 53 23	Ethylene-Propylene-Diene-Monomer (EPDM) Roofing	14
07 62 00	Sheet Metal Flashing and Trim	10
07 72 00	Roof Accessories	7
07 84 13	Penetration Firestopping	5
07 92 00	Joint Sealants	6

DIVISION 8 - DOORS AND WINDOWS

08 31 13	Access Doors & Frames	3

DIVISION 9 - FINISHES

09 22 16	Non-Structural Metal Framing	3
09 29 00	Gypsum Board	5
09 51 13	Acoustical Panel Ceilings	6
09 90 00	Painting	8

DIVISION 22 - PLUMBING

22 05 00	Common Work Results for Plumbing	7
22 05 29	Hangers and Supports for Plumbing Piping and Equipment	5

TABLE OF CONTENTS

22 05 53	Identification for Plumbing Piping and Equipment	3
22 07 00	Plumbing Insulation	6
22 10 00	Plumbing Piping	5
22 19 00	Plumbing Specialties	3

DIVISION 23 - HEATING, VENTILATING, AND AIR CONDITIONING (HVAC)

23 05 00	Common Work Results for HVAC	10
23 05 02	Mechanical Demolition, Relocation and Alteration	5
23 05 29	Hangers and Supports for HVAC Piping and Equipment	8
23 05 53	Identification for HVAC Piping, Ductwork and Equipment	3
23 07 00	HVAC Insulation	5
23 09 23	Direct Digital Controls for HVAC	5
23 09 93	Sequence and Operations for HVAC Controls	2
23 31 00	HVAC Ducts & Casings	6
23 33 00	Air Duct Accessories	3
23 34 00	HVAC Fans	6
23 37 00	Air Inlets and Outlets	3

DIVISION 26 - ELECTRICAL

26 01 26	Testing and Maintenance of Electrical Systems	7
26 05 00	Common Work Results for Electrical	7
26 05 03	Equipment Wiring Connections	3
26 05 19	Low-Voltage Electrical Power Conductors & Cables	5
26 05 26	Grounding and Bonding for Electrical Systems	4
26 05 29	Hangers & Supports for Electrical Systems	4
26 05 33	Raceway & Boxes for Electrical Systems	13
26 05 48	Vibration and Seismic Controls for Electrical Systems	4
26 05 53	Identification for Electrical Systems	5
26 05 90	Selective Electrical Demolition	3
26 27 26	Wiring Devices	3
26 56 00	Lighting	3

DIVISION 27 - COMMUNICATIONS

27 05 28	Pathways for Communication Systems	3

DIVISION 28 - ELECTRONIC SAFETY AND SECURITY

28 10 00	Security System	13

DRAWINGS

G001	Cover Sheet
G002	Index of Drawings
G003	Abbreviations and Symbols Legend
A001	Site Plan
A002	Life Safety Plan – First Floor

TABLE OF CONTENTS

A100	Overall Existing Roof Plan
A101	Existing Roof Plan – Roof A & B
A102	Existing Roof Plan – Roof A, E & L
A103	Existing Roof Plan – Roof C & D
A104	Existing Roof Plan – Roof F, G, H, I, J, K & M
A110	Overall New Roof Plan
A111	New Roof Plan – Roof A & B
A112	New Roof Plan – Roof A, E & L
A113	New Roof Plan – Roof C & D
A114	New Roof Plan – Roof F, G, H, I, J, K & M
A115	New Roof Plan – Roof M
A120	Overall First Floor Plan
A121	Existing Floor Plans – Northwest Sector
A122	Existing Floor Plans – Northeast Sector
A123	Existing Floor Plans – Southwest Sector
A124	Existing Floor Plans – Southeast Sector
A130	(E) Overall Reflected Ceiling Plan
A131	(E) Reflected Ceiling Plans – Northwest Sector
A132	(E) Reflected Ceiling Plans – Northeast Sector
A133	(E) Reflected Ceiling Plans – Southwest Sector
A134	(E) Reflected Ceiling Plans – Southeast Sector
A201	Exterior Elevations
A202	Exterior Elevations
A203	Exterior Elevations
A204	Exterior Elevations
A205	Exterior Elevations
A500	Roof Assemblies
A501	Parapet Wall Sections
A502	Parapet Wall Sections
A503	Parapet Wall Sections
A504	Parapet Wall Sections
A505	Parapet Walk Throughs
A506	Roof Penetration Details
A507	Interior Details
A601	Penetration Schedule
A602	ASD Roof Section Schedule
A901	Photos
A902	Photos
A903	Photos
S001	Abbreviations and Symbols
S002	General Notes and Schedules
S003	Snow Drift Map
S004	Wind Uplift Map
S100	Roof Plan
S101	Roof Plan – Roof A & B
S102	Roof Plan – Roof A, E & L
S103	Roof Plan – Roof C & D
S104	Roof F, G, H, I, J, K, M, Framing Plan
S201	Roof D Partial Framing Plan

TABLE OF CONTENTS

S300	Framing Details
M001	Mechanical Symbol Legend and Abbreviations, and Schedules
M100	Mechanical Site Plan
MD111	Demolition Mechanical Roof Plan – Roof A & B
MD112	Demolition Mechanical Roof Plan – Roof A, E, & L
MD113	Demolition Mechanical Roof Plan – Roof C & D
MD114	Demolition Mechanical Roof Plan – Roof F, G, H, I, J, K, & M
MD121	Demolition Plumbing Floor Plan – First Floor – Northwest Sector
MD122	Demolition Plumbing Floor Plan – First Floor – Northeast Sector
MD123	Demolition Plumbing Floor Plan – First Floor – Southwest Sector
MD124	Demolition Plumbing Floor Plan – First Floor – Southeast Sector
M111	Mechanical Roof Plan – Roof A & B
M112	Mechanical Roof Plan – Roof A, E, & L
M113	Mechanical Roof Plan – Roof C & D
M114	Mechanical Roof Plan – Roof F, G, H, I, J, K, & M
M121	Plumbing Floor Plan – First Floor Northwest Sector
M122	Plumbing Floor Plan – First Floor Northeast Sector
M123	Plumbing Floor Plan – First Floor Southwest Sector
M124	Plumbing Floor Plan – First Floor Southeast Sector
M501	Details
M502	Details
M701	Photos
M702	Photos
E001	Legend and Abbreviations
ED111	Demolition Roof Electrical Plan – Roof A & B
ED112	Demolition Roof Electrical Plan – Roof A, E, & L
ED113	Demolition Roof Electrical Plan – Roof C & D
ED114	Demolition Roof Electrical Plan – Roof F, G, H, I, J, K, & M
E111	Roof Electrical Plan – Roof A & B
E112	Roof Electrical Plan – Roof A, E, & L
E113	Roof Electrical Plan – Roof C & D
E114	Roof Electrical Plan – Roof F, G, H, I, J, K, & M
E121	Electrical Floor Plan – First Floor Overall
E301	Existing Panel Locations
E302	Large Scale Lighting
E501	Existing One-Line Power Diagram
E502	Details and Diagrams
E701	Panel Schedules
H001	Hazards Abatement – General Notes
H100	Hazards Abatement – Overall Roof Plan
H101	Hazards Abatement – Roofs A & B
H102	Hazards Abatement – Roofs A, E, & L
H103	Hazards Abatement – Roofs C & D
H104	Hazards Abatement – Roofs F, G, H, I, J, K, & M
H120	Hazards Abatement – Overall First Floor Plan
H121	Hazards Abatement – Northwest Sector
H122	Hazards Abatement – Northeast Sector
H123	Hazards Abatement – Southwest Sector
H124	Hazards Abatement – Southeast Sector

TABLE OF CONTENTS

H201	Exterior Elevations
H202	Exterior Elevations
H203	Exterior Elevations
H204	Exterior Elevations
H205	Exterior Elevations
H701	Hazards Abatement – Exhibit Photos
H702	Hazards Abatement – Exhibit Photos

EXHIBIT DRAWINGS

EX-A1	1995 Addition Classroom Addition Wall Sections
EX-A2	1995 Addition Classroom Addition Wall Sections
EX-A3	1995 Addition Gym Addition Wall Sections
EX-A4	1997 Roof Replacement Roof Details
EX-A5	1997 Roof Replacement Roof & Ceiling Details
EX-M1	1995 Addition – Classroom Addition Water, Waste & Vent Piping Plans, and Heat & Ventilation Plan
EX-M2	1995 Addition – Gym Water Piping Plan, Gym Waste and Vent Plan & Details
EX-M3	1997 Roof Replacement – Roof Drain Plan & Details
EX-M4	1969 Original Construction – Underfloor Plan Piping Diagram & Details
EX-M5	1995 Addition – Utility and Site Plan
EX-M6	1995 Addition – Gym Heating & Ventilation Plan and Enlarged Plans
EX-M7	1995 Addition – Pod Remodel Plans
EX-M8	2017 HVAC Upgrades – Title Sheet
EX-M9	2017 HVAC Upgrades – Stage/Gym Vent Plan & Roof Plan
EX-M10	2017 HVAC Upgrades – Boiler Room Ventilation/Gas Demo & New Plans
EX-M11	2017 HVAC Upgrades – Fan Room Demo & New Plans
EX-M12	2017 HVAC Upgrades – Sections
EX-M13	2017 HVAC Upgrades – Reference Drawings
EX-M14	2005 Mechanical Upgrades – Large Scale Plans & Sections, Classroom Pod 1 Fan Room
EX-M15	2005 Mechanical Upgrades – Large Scale Plans & Sections, Classroom Pod 2 Fan Room
EX-M16	2005 Mechanical Upgrades – Large Scale Plans & Sections, Classroom Pod 3 Fan Room
EX-M17	2005 Mechanical Upgrades – Large Scale Plans & Sections, Office/IMC Ran Rooms

INVITATION TO BID (ITB) NUMBER: 2025-805
College Gate Elementary School Roof Replacement

Sealed bids will be received in accordance with the time schedule shown below by the Anchorage School District, Purchasing Department, located at 4919 Van Buren Street Anchorage, Alaska 99517 for College Gate Elementary School Roof Replacement per the attached Instructions to Bidders, General Conditions, Technical Specifications, Drawings and Bid Form.

ESTIMATED CONSTRUCTION COST: Between $1,000,000 - $5,000,000

On-Site Visit:	October 28, 2024 at 3:00 p.m. Local Time
Pre-Bid Conference:	October 29, 2024 at 11:00 a.m. Local Time
Bid Opening:	November 12, 2024 at 2:00 p.m. Local Time

At the above indicated time, the bids will be opened publicly and read. Bids received by the Purchasing Department after the time fixed for opening of the bids will not be considered. Time of receipt will be as determined by the time stamp at the Purchasing Department.

Due to ongoing construction, we are closing the public bid opening to in-person attendance. Bidders who wish to participate by teleconference may do so by calling (907) 742-6750. The line will be available approximately 5 minutes prior to the opening start time.

DOCUMENTS:

Prospective bidders may obtain copies of bidding documents at the Anchorage School District website http://www.asdk12.org/depts/purchasing/PurchasingBids.aspx Only electronic versions of this ITB are issued.

A copy of the current plan holder's list can be viewed at:
http://apps.asdk12.org/depts/purchasing/meeting/Plan_Holders/2025/805.xlsx

NOTICE TO BIDDERS:

A bid bond in the amount of five (5%) percent of the total amount of the base bid will be required **(cash, personal or business checks are unacceptable).** The successful Contractor shall be required to furnish 100 percent performance and payment bonds.

The Anchorage School District reserves the right to reject any and all bids, and to waive any informalities or irregularities in bidding procedures.

ON-SITE VISIT AND PRE-BID CONFERENCE:

An On-Site Visit will be held on October 28, 2024 at 3:00 p.m. Local Time at College Gate Elementary School, 3101 Sunflower Street, Anchorage, Alaska 99508. Please meet at the Front Office.

A Pre-Bid Conference will be held October 29, 2024 at 11:00 a.m. Local Time. **Due to ongoing construction, we are closing the Pre-Bid Conference to in-person attendance.** Prospective Bidders who wish to participate may do so by teleconference by calling (907) 742-6750. The line will be available approximately 5 minutes prior to the conference start time.

All Bidders are encouraged to attend the On-site Visit and Pre-Bid Conference. Major sub-bidders are also encouraged to attend.

The Anchorage School District is committed to providing reasonable accommodations, according to applicable state and federal laws, to all individuals with a qualifying disability. If you require a reasonable

accommodation in order to participate in this or any other district process, please contact the Anchorage School District's Compliance/Equal Employment Opportunity Office at (907) 742-4132.

END OF SECTION

INSTRUCTIONS TO BIDDERS

PART 1 GENERAL INFORMATION

1.01 Refer to the Invitation to Bid for information relating to time, date and place for receipt of bids and other pertinent bidding information.

1.02 Anchorage School Board Policy 3515.5 prohibits a contractor whose employees or agents may have direct or incidental contact with Anchorage School District (the District) students from sending any employee or agent to district property who has been convicted of a sex offense under federal law or the law of any state and who is required to register as a sex offender under Alaska law or by court order, or who has been convicted of child kidnapping under federal law or the law of any state and who is required under Alaska law or court order to register on the Alaska Department of Public Safety Sex Offender/Child Kidnapper Central Registry. Board Policy 3515.5 requires contractors to certify in writing the contractor's knowledge of and compliance with Board Policy 3515.5. ***Prior to executing a contract*** for this project, the selected Contractor shall verify that no employee or agent who will be on district property is registered as a sex offender or child kidnapper in Alaska [Alaska Department of Public Safety "Sex Offender/Child Kidnapper Registry"] or in any other state. In addition, the contractor shall certify that, to its knowledge, no employee or agent is a convicted sex offender or child kidnapper. The required forms of certification are included in the bid documents.

1.03 LICENSE REQUIREMENTS

A. The bidder shall include on the bid Form his current Business License number and expiration date from the State of Alaska authorizing him to engage in business to operate as a Business, Specialty or General Contractor, as well as his Federal Tax Identification number.

B. The bidder shall provide a copy of his current State of Alaska Business License and Specialty or General Contractor license when requested in writing by the Purchasing Department.

1.04 BIDS

A. The bidder shall review all of the proposed contract documents to ascertain all of the requirements of the work.

1.05 EXAMINATION OF PLANS, SPECIFICATIONS, SPECIAL PROVISIONS AND SITE WORK

A. The bidder shall examine carefully the site of the proposed work, the proposal, plans, specifications and contract forms before submitting a proposal. The submission of a bid shall be an admission that the bidder has made such examination and is satisfied as to the conditions to be encountered in performing the work and as to the requirement and accuracy of the plans, specifications, special provisions and terms of the contract.

B. All documents furnished to any person, under any condition, remain the property of the Anchorage School District and shall be returned immediately upon request.

C. Documents may be obtained upon the conditions set forth in the Invitation to Bid.

1.06 METHOD FOR CLARIFICATION

A. Any bidder in doubt as to the meaning of any part of the plans, specifications or other documents may submit a written request for an interpretation. The bidder submitting the

request will be responsible for its prompt delivery not less than seven (7) working days prior to the date set for opening of bids. Questions can be delivered as follows:

1. Fax: (907) 243-6293
2. Email: purchasing@asdk12.org
3. Mail: Purchasing Department
   4919 Van Buren Street
   Anchorage, Alaska 99517
4. Hours: 7:30 a.m. – 4:00 p.m.

B. A written request for an interpretation, which in the opinion of the Purchasing Department requires a reply, will be answered by issuing an addendum to all plan holders prior to the bid opening. The Owner will not be responsible for any other explanation or interpretation of the plans, specifications or other documents made or given prior to the bid opening.

1.07 PREPARATION OF BIDS

A. Preparation and Submission:

Bids must be submitted on the forms furnished or copies thereof, and must be manually signed. In order to secure consideration, the bid must be submitted and sealed in an envelope on which contract identification is plainly marked on the outside. The bid form is included in the bidding documents. The envelope shall be addressed as indicated in the Invitation to Bid.

B. Form:

The bid may provide for a quotation of a price, or prices, for one or more items which may be lump sum bids, alternate prices, scheduled items resulting in a bid on a unit of construction, or a combination thereof. Where required on the bid form, bidders must quote on all items and they are warned that failure to do so shall disqualify the bid.

If erasures or other changes appear on the forms, each such erasure or change must be initialed by the person signing the bid.

C. Alternate Bids and Qualified Bids:

Bids may be rejected if they show any omissions, alteration of the forms, additions not called for, conditional or alternate bids not called for or irregularities of any kind.

1.08 BID GUARANTEE

A. Each bid shall be accompanied by a bid bond with good and sufficient surety or sureties acceptable to the Owner. The Anchorage School District will require five percent (5%) of the total amount of the base bid as a guarantee **(cash, personal, or business checks are not acceptable)**. Bid guarantees for the three (3) low bidders will be held until the contract is executed.

B. All other bid guarantees will be returned within seven (7) days of the bid opening. Power of Attorney for the official signing of the bond for the surety company must be submitted with the bond.

1.09 ALTERNATES

A. The bidder shall include in the spaces provided on the “Bid Form” a bid for each alternate, if applicable.

B. The Owner may accept alternates in any order or number and include them in the contract award price.

1.10 UNIT PRICES

A. The bidder shall include in the spaces provided on the “Bid Form” a bid for each unit price, if applicable.

B. The Owner may accept any or all of these unit prices and include them in the contract award price.

C. In the case of discrepancy in the extended price calculation(s), the unit price(s) will prevail.

1.11 BIDDER QUALIFICATIONS (TO BE INCLUDED IF THERE IS NO 2-STEP QUALIFICATION PROCESS)

A. Before the bid is considered for award, the Owner reserves the right to request the bidder to complete within seventy-two (72) hours a bidder qualification form and/or a current financial statement prepared by a Certified Public Accountant. Bidder qualifications to be listed upon the qualification form will include, as a minimum, a listing of bidder’s previous contracts of a nature similar to that being bid upon; a listing of bidder’s staff, to include managerial, technical and laboring positions; summary of bidder’s plan and equipment available for use in the execution of the contract; and a listing of the projects to which the bidder is obligated in the near future. The Owner reserves the right to reject the bid of any bidder who fails to furnish promptly and properly all the information required in this paragraph.

B. A bidder will be deemed to be unqualified to perform the contract if, after review and verification of the representations included on the qualification form submitted by the bidder, the following conditions appear:

1. Bidder does not have sufficient prior experience (or an acceptable substitute thereof, as described below) with projects of a similar nature in technical, managerial and financial requirements to that in the present contract being bid.

a. Experience does not necessarily mean that the bidder is an established Contractor in the exact technical area for which the bid is submitted. In addition to such established contractors, newly established contractors will be considered qualified if they have shown on the bid qualification sheet form that they are staffed with sufficient technical, managerial and financial personnel with prior experience in the nature of construction for which the bids are invited, that bidder may adequately foresee and appreciate problems of such construction.

2. Bidder does not have sufficient capability to undertake the obligations of the contract. A determination in this respect will be made when the Owner, upon review of the probable cash flow needs of the Contractor for this particular contract (to include payroll, cost of material and supplies, equipment rental costs and any other direct or incidental costs of the contract), determines that the Contractor does not have sufficient financial resources to enable him to satisfy his financial obligations under the contract. The Owner will consider all other pertinent financial

data required by this clause and submitted by the Contractor. A determination that the bidder is unqualified will not be made under this paragraph unless the Owner has determined that the bidder cannot meet his financial obligations under the contract after having considered all sources of income available to the bidder.

3. The bidder does not have sufficient staff, equipment or plant available to perform the contract. The Owner's determination in this matter will be based upon that represented by the bidder in his completion of the Bidder Qualification documents discussed above.

4. The bidder has a consistent history of unsatisfactory performance of contracts of this or similar nature, regardless of whether such contracts existed between the Owner and the Contractor, or other parties and the Contractor.

   a. A determination of this nature will not be made unless the Owner, after review and verification of the contractor's previous work experience, determines that the contractor's consistent, unsatisfactory performance has resulted from the contractor's failure rather than a failure to perform by the other party. The Owner will give the Contractor an opportunity to explain such nonperformance(s) before any final determination is reached. Contract disputes which are pending resolution before any duly authorized judicial or administrative body will not be considered in reaching this determination.

   b. A determination of a "consistent failure to perform" will not be made unless the Owner is satisfied after review of the bidder's prior experience that the Contractor has repeatedly failed to satisfy his obligations under past contracts. For purposes of this clause, "consistent" will not be construed to mean in every contract, nor will it be construed to include "isolated instances" of failure to perform.

   c. In reaching any determination of this nature, the Owner may consider statements of other parties to the prior unperformed contracts, as well as the representations of the Contractor on his "Bidder Qualification" form. However, in each instance, the Owner will advise the Contractor of such other statements considered before a determination that the bidder is not qualified, as made by the Owner.

C. The bidder's representations concerning his qualifications will be construed as a covenant under the contract. Should it appear that the bidder has made a material misrepresentation on his "Bidder Qualification" form, the Owner shall have the right to terminate the contract for the Contractor's breach, and the Owner may then pursue such remedies as exist elsewhere under this contract, or as otherwise are provided at law or equity.

D. A determination that a bidder is unqualified will be made by the Owner. Such determination will be made in writing and include a thorough discussion of why the bidder is deemed unqualified. A letter will be sent to the bidder deemed unqualified, stating the reasons for such determination, and the bidder's right to request a review of this determination by appeal to the Anchorage School District Board.

E. Any bidder who is deemed to be unqualified may, as provided under existing Anchorage School District policy, appeal such determination to the Anchorage School District Board prior to contract award to another bidder.

1.12 RECEIPT AND OPENING OF BIDS

A. Time of Opening:

Bids shall be submitted prior to the time specified in the Invitation to Bid, and the exact date and time of receipt of bids will be recorded. Late bids will not be considered, but will be held unopened until the time of award and then returned to the bidder, unless other disposition is requested or agreed to by the bidder. Time of bid receipt will be determined by the time stamp at the Purchasing Department, 4919 Van Buren Street, Anchorage, Alaska 99517.

B. FAX/Telegraph/Telephonic/E-Mail Bids:

FAX/telegraphic/telephonic/e-mail bids will not be considered. Modification by FAX or telegraph of bids already submitted will be considered if received prior to the time fixed in the Invitation to Bid. FAX/telegraphic modifications shall not reveal the amount of the original or revised bid.

C. Officer's Responsibility:

No responsibility will attach to any officer or agent of the Owner for the premature opening of, or the failure to open a bid not properly addressed and identified.

1.13 WITHDRAWAL OF BIDS

A. Bids may be withdrawn on written request received from the bidders prior to the time specified for opening.

B. No bid shall be withdrawn for a period of ninety (90) days subsequent to the bid opening without the written consent of the Owner.

1.14 BIDDERS INTERESTED IN MORE THAN ONE BID

A. If more than one bid is offered by any party, by or in the name of his clerk, partner, or other person, all such bids will be rejected. A party who has quoted prices to a bidder is not thereby disqualified from quoting prices to other bidders, or from submitting a bid directly for the work.

1.15 BIDDERS PRESENT

A. At the time and place specified for the opening of bids, contents of the bids will be made public for the information of bidders and other parties.

1.16 REJECTION OF BIDS

A. The Owner reserves the right to reject any or all bids, and to waive any informalities or irregularities in bidding or award of the contract.

1.17 AWARD OF CONTRACT

A. Acceptance of Bid:

Following the opening and evaluation of bids, the Owner will determine the apparent low responsive bidder and, subject to its right under Paragraph 1.16 to reject all bids, decide whether to accept the apparent low responsive bid. The Owner's acceptance of the apparent low responsive bid will be through a written notice from a duly authorized

representative of the Owner, and no other act of the Owner or its representative will constitute an acceptance of a bid. The notice shall be titled “Notice of Intent to Award Contract,” and shall set forth pre-award procedures and requirements, if any, including procedures for approval and award of contract by the School Board.

B. Basis of Award

1. It is the Owner’s intention to award a contract to the lowest responsive and responsible bidder, including alternates, base bid, and quantified unit prices accepted by the Owner at the time of award, if applicable.
2. Unit prices which are not quantified will not be included in the determination of the award.
3. The Owner reserves the right to award the alternates in any combination with the base bid and include them in the total award.
4. The District reserves the right to request the lowest bidder(s) whose bids are determined to be reasonably susceptible to award to review their previous bids with consideration of any additions, clarifications or modifications, submit revised bids for Best and Final Offers (bids). If Best and Final Offers are requested, selected offerors must submit revised bids on the forms provided by the District to be considered for evaluation and award. Bidders who do not submit a Best and Final Offers (revised bids), when requested, will not be considered for evaluation and award and their bids will be rejected and considered non-responsive.

    a. For purposes of this ITB, bids that are “reasonably susceptible to award” means the three (3) lowest responsive and responsible bidders, unless, in the sole discretion of the District’s Purchasing Senior Director, one or more of the three lowest responsive and responsible bidder(s) was not within the competitive range and to remain under consideration for award when evaluated with other bids or the District received one or more additional bids that are within the competitive range of the three lowest responsive and responsible bids such that the additional bid(s) may remain under consideration when evaluated with the other bids. This is a strict mathematical evaluation and may not be challenged on that basis except in the case of obvious arithmetic errors.

C. Notification of Award to Bidders:

Following opening of bids and determination of the apparent low responsive bidder, the Administration will make public in the Purchasing Contracting Office each Notice of Intent to Award ten (10) calendar days prior to the scheduled award by the Board, except for purchases under $100,000 which is three (3) business days. Bidders may, upon request to the Purchasing Office and/or Purchasing Contracting Office, review the bid tabulation summary prior to the scheduled Board award date.

D. Amount of Contract

The amount of the contract shall be understood to be the lump sum as given in the bid form. Where prices are given on alternative items, only the amounts of the alternates accepted by the Owner will be included in the total.

E. Execution of Contract:

By the Contractor: The bidder whose bid is accepted shall execute the contract and furnish the required bonding and insurance within five (5) days after presentation of the contract for signature. The contract shall be deemed to be executed by the successful bidder when

two (2) originals of the contract, signed by an authorized officer of the corporation or company, and with each separately signed the bonds and insurances required herein, are received by the Owner. Failure or neglect to execute the contract, within the time specified or such extended period, if any, that the Owner may, in its sole discretion, authorize, shall constitute a breach of the agreement affecting the acceptance of the bid. The damages to the Owner for such a breach shall include loss from interference with the general Capital Improvements Program of the Owner, and other items whose accurate amount would be difficult or impossible to compute.

The amount of the bid guarantee of the successful bidder who fails or neglects to execute the contract after proper notification of the acceptance of the bid shall be retained by the Owner as liquidated damages for such breach.

By the Owner: Upon receipt of the above-referenced two (2) Contracts executed by the Contractor, including all required bonds and insurance certificates, the properly authorized Owner representatives will execute the documents within ten (10) days. The contract shall be deemed to be completely executed when two (2) copies thereof, accompanied by the required bond, liability and other necessary insurance and signed by the Contractor, are executed by the Owner. All awards shall comply with the Anchorage School District Purchasing and Contracting Policy 3311. Awards of $500,000 or more shall be presented to the School Board for their approval.

1.18 PERFORMANCE BOND AND PAYMENT BOND

A. The successful bidder will furnish a Performance Bond and a Payment Bond in accordance with Section 00700, Paragraph 7.5.

1.19 INSURANCE

A. The successful bidder will furnish complete Certificates of Insurance, as required by the General Conditions and Supplementary Conditions, in a form acceptable to the Owner.

1.20 NOTICE TO PROCEED

A. The Owner will issue a Notice to Proceed with the work within ten (10) days following the Owner's execution of the contract. The date of commencement of the work shall be the date established in the Notice to Proceed. The Owner will not be responsible for any costs incurred by the Contractor prior to the Notice to Proceed.

1.21 AGGRIEVED BIDDERS

A. Protest:

1. An interested party may protest a solicitation or a proposed award of a contract.

a. A protest as to the specifications and/or terms and conditions of a solicitation must be received by the Purchasing Senior Director at least five (5) calendar days prior to the due date of the bid or proposal; failure to protest as provided herein constitutes a waiver of any objection to the solicitation.

b. For construction projects and architectural/engineering design services, the protest of a proposed award of a contract must be received by the Purchasing Senior Director within ten (10) calendar days after issuance of

the notice of intent to award, except that for purchases under $100,000, the protest must be received within three (3) business days.

c. For goods or services, the protest of a proposed award of a contract must be received by the Purchasing Senior Director within seven (7) calendar days after issuance of the notice of intent to award, except that for purchases under $100,000, the protest must be received within three (3) business days.

d. The protest must include the name of the person submitting the protest, the name of the bidder/proposer represented by that person, the specific action or bid/request for proposal contract award which is being protested, a detailed explanation of the reasons for the protest, and the relief requested.

e. The aggrieved person must serve all other interested parties with its protest.

2. The Purchasing Senior Director shall stay the intended award of a contract unless the Purchasing Senior Director determines the award of the contract without further delay is necessary to protect the District's best interest.

3. The Purchasing Senior Director may, in his/her sole discretion, hold a hearing.

4. The rights and remedies granted by this section are not available for informal small purchases with an actual or potential value of less than twenty-five thousand dollars ($25,000).

5. Failure to protest as provided herein constitutes a waiver of any objection to the solicitation and contract award.

B. Appeal:

1. A decision by the Purchasing Senior Director may be appealed to the Anchorage School Board.

2. Any appeal shall be filed with the Superintendent within five (5) days after the decision is received by the protester and must include the name of the person submitting the appeal, the name of the bidder/proposer represented by that person, and a detailed explanation of the basis for the appeal.

3. The aggrieved bidder/proposer must serve all other interested parties with its appeal.

4. The Superintendent may obtain an independent review of the appeal issues if the Superintendent determines such review will assist consideration of the appeal.

5. The independent review shall be conducted by a not directly involved District employee or an experienced but disinterested third party from outside the District.

6. Failure to appeal to the Anchorage School Board as provided herein constitutes a waiver of any objections to the solicitation and the contract award.

C. Consideration of Appeal:

1. The decision being appealed and the findings from the independent review, if any, will be reported to the Board.

2. Upon consideration of the appeal and allowing interested parties an opportunity to address the issues on appeal, the Board may:

   a. Award the contract as recommended, if applicable, indicating its reasons for rejecting the appeal;

   b. Grant the appeal, indicating its reasons for granting the appeal, and determine an appropriate remedy consistent with AR3311.1(c).1 of Board Policy. The Board may award the contract at that meeting to some other bidder/proposer if it finds that a delay in making the award would adversely affect the District;

   c. Stay any award of the contract to permit further consideration of the appeal, with action to be scheduled as soon as practicable, but in no event more than twenty (20) days after the stay as initiated;

   d. Reject all bids/proposals.

   e. Take such other action as appears appropriate and in the best interest of the District under the circumstances.

D. Frivolous Protests:

1. Signature on Protest Constitutes Certificate
   The signature of an attorney or party on a request for review, protest, motion, or other document constitutes a certificate by the signer that the signer has read the document, to the best of his/her knowledge, information, and belief formed after reasonable inquiry it is well grounded in fact and is warranted by existing law or a good faith argument for the extension, modification, or reversal of existing law, and that it is not interposed for an improper purpose, such as to harass, limit competition, or to cause unnecessary delay or needless increase in the cost of the procurement or of the litigation.

2. Sanctions for Violation
   If a request for review, protest, pleading, motion, or other document is filed with the Purchasing Senior Director is signed in violation of Board Policy AR3311.1(c).1, the Board, may impose upon the person who signed it, a represented party, or both, an appropriate sanction, that may include an order to pay to the other party or parties the amount of the reasonable expenses incurred because of the filing of the protest, pleading, motion, or other paper, including a reasonable attorney's fee.

1.22 GUARANTEE SECTION

A. Whether or not there appears here or elsewhere herein specific reference to guarantees of all items of material, equipment or workmanship, they nevertheless shall be so guaranteed against defects for which the Contractor is responsible that may develop or become evident within a period of one (1) year from and after final acceptance of the work by the Owner. This guarantee shall be understood to imply prompt attention to any remedy of such defects as those mentioned above if and as they occur after the Contractor shall

have written notice of their existence. If the defect, in the opinion of the Owner, is of such nature as to demand immediate repair, the Owner shall have the right to make them and the cost thereof shall be borne by the Contractor.

1.23 SUBCONTRACTORS

A. All subcontractors proposed for the work must be acceptable to the Owner.

B. The Owner reserves the right to request the proposed subcontractors to complete qualification forms and/or current financial statements prepared by a Certified Public Accountant.

1.24 MINIMUM WAGE RATES

A. Labor required for the construction of this project is subject to the minimum wage rates as provided in the General Requirements.

1.25 NON DISCRIMINATION

A. No bidder/offeror on any District contract may illegally discriminate on the basis of sex, race, color, religion, gender identity, sexual orientation, national origin, ancestry, age, marital status, changes in marital status, pregnancy, parenthood, physical or mental disability, Vietnam era veteran status, genetic information, or good faith reporting to the board on a matter of public concern in employment, provision of services, or otherwise.

B. Any bidder/offeror submitting a bid or proposal of one hundred thousand ($100,000) or more must certify that if awarded a contract on the basis of that bid or proposal, he/she as the contractor will not illegally discriminate against any member or applicant for employment because of sex, race, color, religion, gender identity, sexual orientation, national origin, ancestry, age, marital status, changes in marital status, pregnancy, parenthood, physical or mental disability, Vietnam era veteran status, genetic information, or good faith reporting to the board on a matter of public concern in employment, provision of services, or otherwise.

1. Notice of Compliance

a. All successful bidders/offerors shall insure such non-discrimination.

b. All successful bidders/offerors must agree to post in conspicuous places, available to employees and applicants for employment, notice setting forth the provisions of this non-discrimination section and this section shall be deemed to be a part of every contract entered into by the District under these policies.

2. Minority Business Enterprises

a. The District requires adherence to the Anchorage Municipal Code, relating to Minority Business Enterprises and will monitor and implement these policies through the District's Equal Employment Opportunity Director (EEO).

b. It is the policy of the District that socially and economically disadvantaged minority businesses located within the Municipality of Anchorage be afforded an equitable opportunity to participate in District contracts.

c. Any appeal from a decision of the Equal Employment Opportunity Director shall be to the Superintendent and, if not satisfied, to the Board.

1.26 ASBESTOS FREE MATERIALS

A. The bidder, by submitting a bid on this project, thereby certifies and guarantees to the Anchorage School District that any products or materials sold, used or installed under the terms of this contract will not contain any asbestos. In the event the product sold does not conform to the above standards, the buyer may return the product for correction or replacement at the seller's option and at the seller's expense. Services performed by the seller which do not conform to the above standards must be corrected by the seller at the seller's expense or make the appropriate correction within a reasonable time.

1.27 CONFLICT OF INTEREST

A. The Contractor agrees to certify that Anchorage School District employees, School Board members, or a member of their household are not in conflict of interest with the contract and Board Policy as follows (AR3311.1(e).1 Disclosure and Waiver of Conflict of Interest):

1. No Board member, employee, or a member of their household, shall acquire, directly or indirectly, an economic interest in a District or Municipal contract, or engage in business with the District or the municipality, unless the contract is competitively solicited and other requirements of Section 3311 of Board Policy and section 1.15 of the Anchorage Municipal Code are met.

2. The following acts and circumstances shall not be deemed to be in conflict with the performance of official duties if, at the earliest opportunity after having acquired such knowledge, the Board member or employee files a disclosure pursuant to AR3311.1(e).1 or requests and obtains a waiver pursuant to Board Policy AR3311.1(e).2:

a. Such person owns a sole proprietorship, or is a partner in a partnership, or is an officer, director, major shareholder (five percent (5%) or more of the outstanding shares) or has management control in a corporation that submits a bid, proposal or quotation to the District or attempts to enter or enters into a contract with the District;

b. Such person has any significant (five percent (5%) or more) financial interest in any sale, lease or rental to the District of any service or property and such person has knowledge that the District intends to purchase, lease or rent the property or service;

c. Such person wishes to sell or receive royalties on books or materials sold to the District for use in the school system for which the employee is the author;

d. Such person is an employee who has been providing private services to a child who transfers to a new school or class or advances to a higher grade and the child becomes a student in the class being taught/aided by his/her provider.

B. Board Members, District employees, and their household and/or immediate family members are required to comply with Board Policies and the Municipal Ethics Code by disclosing conflicts of interest.

1. When a board member, employee, or their household and/or immediate family member intends to do business with the District, the appropriate District and Municipal forms must be filed by the Board Member or District employee with the Municipal Clerk's Office and the Purchasing Department.

> Note: *Notice of Intent To Respond To Public Solicitation* shall be filed with the Municipal Clerk's office in advance to allow a minimum of **7 calendar days to elapse between electronic publication by the clerk and the final date** for submitting a response to the solicitation. The form may be obtained from the Municipality of Anchorage website, www.muni.org.
>
> District *Disclosure* and *Request for Waiver* forms and instructions may be obtained from the Purchasing Bid Information link under Quick Links on the ASD website, www.asdk12.org.

2. The responsibility for complete and timely filing rests solely with the Board Member or District employee.

C. Copies of all conflict of interest and ethics code documents should be submitted with your quote.

1.28 CONTRACT INDUCEMENTS

A. No payment, gratuity or offer of employment shall be made in connection with any contract, by or on behalf of the subcontractor to the prime contractor or higher tier subcontractor or any person associated therewith, as an inducement for the award of a subcontract or order.

1.29 GOVERNANCE

A. This solicitation is an Invitation to Bid ("ITB") governed by applicable Anchorage School Board Policies, including Section 3311 of such Policies. Anchorage School Board Policies are available at
https://www.boardpolicyonline.com/?b=anchorage

Offerors should read this ITB carefully and review all instructions contained herein. Incomplete or incorrect bids may be rejected as not conforming to the essential requirements of the ITB. Bids submitted on other than the prescribed forms contained in this ITB will be rejected. Bidders may copy the forms contained in the ITB for use in their bids, but substitute forms or formats are unacceptable. Electronic copies of the forms which bidders must submit as part of any bid, if any—if not provided with this ITB—may be obtained by contacting the Anchorage School District Purchasing Department. Forms shall not be altered except to supply requested bidder information.

1.30 APPRENTICESHIP UTILIZATION COMPLIANCE

A. In order to be deemed a responsive bid/offer, bidders/offerors shall provide a signed notarized Apprenticeship Utilization Affidavit ("AUA") with their bid. ASD reserves the right to request the signed notarized AUA to be submitted within three (3) working days after bid submission. By doing this, bidders/offerors are confirming that they understand and agree that in all trades/crafts categories in which there is an Alaskan Federally Registered

Apprenticeship Program, they will ensure that 15% of the aggregate hours in those trades' categories will be worked by apprentices, as mandated by Anchorage School Board Policy 3311.1.2. This applies to both prime contractor labor hours and subcontractor labor hours. By signing the AUA, bidders/offerors are confirming their understanding and agreement that ASD will request documentation to factually demonstrate compliance with the 15% Apprenticeship Utilization Policy ("AUP"), and conduct audits. Audits for smaller projects will be conducted every 30 days, larger projects will be audited every 90 days. In addition to providing documentation to ASD to confirm that 15% of the labor hours worked in trades/crafts categories that have Alaskan Federally Registered Apprenticeship Program has been done by certified apprentices enrolled in such programs, the prime contractor will provide documentation to confirm that the apprentices listed on the documentation submitted are currently in good standing in their Alaskan Federally Registered Apprenticeship Program. Attached to the solicitation will be the current version of the Federally Registered Alaskan Apprenticeship Programs, which was provided to ASD by the Federal Department of Labor.

B. Forms used to demonstrate compliance during the contract administration period are found in Section 00630 Construction Forms.

1. List of Federally Registered Alaskan Apprenticeship Programs

    a. This list from the Federal Department of Labor will provide contractors with a list of Alaskan apprenticeship programs and crafts/trades categories that are subject to ASD's AUP.

2. Apprenticeship Utilization Form

    a. The Prime Contractor will list the crafts/trades categories required to complete the project that have Alaskan Federally Registered Apprenticeship Programs. This list will include all crafts/trades categories for both the prime and subcontractors.

3. Apprenticeship Utilization Program Calculation Form

    a. This form will be submitted by the prime contractors to demonstrate compliance with the apprenticeship utilization percentage for both prime and subcontractors on the project.

    b. Audits will be performed when the hours submitted by the prime's and/or subcontractor's certified payroll exceed 500 hours. Audits will continue as per the schedule unless the prime's and the subcontractor's certified payroll does not meet the minimum threshold of 500 hours. Prime and Subcontractors will be required to submit certified payrolls during periods where very little work is being performed. This will continue until the minimum threshold of 500 hours is met and warrants an audit. Audits will be conducted from Site Available to Contractors through Final Completion on all projects awarded by the District in excess of $100,000 at the time of bid.

4. Penalty Table

    a. This table lists the penalties for non-compliance with the AUP.

C. Prime Contractors are required to meet with Purchasing to discuss forms and processes of Apprentice Utilization Program prior to start of work.

END OF SECTION

PROJECT SCHEDULE MILESTONE DATES

On-Site Visit ..... October 28, 2024

Pre-bid Conference ..... October 29, 2024

Bid Opening ..... November 12, 2024

Board Meeting (anticipated).....December 3, 2024, Non-Action, December 17, 2024, Action

Notice to Proceed (anticipated).....February 17, 2025

Site Available to Contractor..... May 26, 2025

Substantial Completion – Building .....August 12, 2025/ August 1, 2026

Substantial Completion - Site.....August 1, 2026

Final Completion ..... September 30, 2026

Dates of Interest:

Thanksgiving Holiday ..... November 28 – 29, 2024
Winter Vacation.....December 23, 2024 – January 3, 2025
Martin Luther King Holiday ..... January 20, 2025
Presidents Day Holiday.....February 17, 2025
Parent Teacher Conferences ..... February 26- 27, 2025
Spring Break Week .....March 10 – 14, 2025
School Ends for Students..... May 21, 2025
Teachers Last Day ..... May 22, 2025
Memorial Day Holiday ..... May 26, 2025
Juneteenth Holiday ..... June 19, 2025
Independence Day Holiday .....July 4, 2025
Teachers First Day.....August 11, 2025
Students First Day.....August 14, 2025
Labor Day ..... September 1, 2025
Indigenous Peoples Day ..... October 13, 2025
Parent Teacher Conferences ..... October 22 – 23, 2025
Thanksgiving Holiday ..... November 27 – 28, 2025
Winter Vacation.....December 22, 2025 – January 2, 2026

The Contractor shall be required to plan, schedule, execute and complete all work under the contract in accordance with the Project Schedule Milestone Dates set forth under this Section 00200. The above-listed Project Schedule Milestone Dates for Substantial Completion and Final Completion may not be altered by the Contractor, either to schedule or to achieve early completion of the project, without the express written consent of the Owner.

The bidder's attention is drawn to the requirements of Division 1, Section 01311 of the General Requirements entitled Project Schedule and to the Phasing Drawings for associated phasing information.

END OF SECTION

Project Title: College Gate ES Roof Replacement | Invitation to Bid Number: 2025 – 805

TO: Anchorage School District
4919 Van Buren Street
Anchorage, Alaska 99517

FROM: _____BIDDER

_____ADDRESS

_____CITY/STATE

_____PHONE/FAX

_____EMAIL

Operating as (strike out conditions that do not apply) an individual, a company, a corporation, organized and existing under the laws of the State of _____, or a proprietorship, a partnership, or joint venture consisting of _____

_____.

1. BASE BID:

Having become completely familiar with the local conditions affecting the cost of the work at the place where work is to be executed, and having carefully examined the site and building conditions as they currently exist, and having carefully examined the proposed contract documents, together with any addenda to such contract documents as listed hereinafter, the undersigned hereby proposes and agrees to provide all labor, materials, equipment, transportation, supervision and other facilities as necessary and/or required to execute all of the work described by the aforesaid contract documents for the lump sum consideration of:

$ _____ (In Numbers)

Said amount being hereinafter referred to as the base bid, base bid proposed, or lump sum.

2. ALTERNATES:

The undersigned proposes to perform alternates for the stated resulting additions or deductions from the base bid. Additions and deductions shall include any modifications of work or additional work that the undersigned may deem to be required to perform by reason of the acceptance or rejection of any alternate, including allowances for overhead and profit, and in accordance with the Project Schedule Milestone Dates set forth under Section 00200 hereof. The Owner reserves the right to award the alternates in any order or number and include them in the contract award price.

A. Alternate Number One: INCREASE INSULATION INDICATED BY 2- INCHES.

Adjust Base Bid by ADDING: $_____ (In Numbers)

B. Alternate Number Two: INCREASE INSULATION INDICATED BY 4 1/4 INCHES.

Adjust Base Bid by ADDING: $_____ (In Numbers)

C. Alternate Number Three: PROVIDE REPAIRS TO EXTERIOR METAL FACED PLYWOOD PANELS (MFPP) AND RELATED TRIMS.

Adjust Base Bid by ADDING: $_____ (In Numbers)

D. Alternate Number Four: PROVIDE REPAIRS TO DAMAGED STORM DRAIN LINE BELOW EAST PARKING INCLUDING PAVEMENT REPAIRS.

Adjust Base Bid by ADDING: $_____ (In Numbers)

3. UNIT PRICES:

The following unit prices will be used at the discretion of the Owner for the addition or deletion of work not reasonably implied or not included in the Contract Documents. Unit prices must include all labor, material, overhead, and profit for each unit of work. All unit price work will be processed by Request for Proposal followed by a Change Order to the Contract when quantities are verified and agreed upon.

A. None

4. ALLOWANCES / ASSIGNMENTS:

A. None

5. ADDENDA ACKNOWLEDGMENT:

The undersigned acknowledges receipt of the following addenda: (List by number and date appearing on addenda.)

_____

_____

_____

6. TIME OF COMPLETION:

The undersigned agrees to complete all work under this contract in accordance with the Project Schedule Milestone Dates set forth under Section 00200 hereof.

7. BID SECURITY:

A bid bond in the amount of five percent (5%) of the total amount of the base bid is attached in the sum of:

$ _____ (In Numbers)

which is to become the property of the Owner in the event the Performance Bond and Payment Bond are not executed within the time set forth in paragraph 10 of this section, as liquidated damages for the delay and additional work caused the Owner.

8. The undersigned agrees that upon receipt of the notice of acceptance of his bid, he will execute the formal contract, and will deliver all proper bonds and proof of insurance coverage as may be required by the contract documents.

9. The undersigned agrees to accept the Assignment of the Bid Allowance as set forth in Section 01031, Bid Allowances.

10. The undersigned further agrees to execute the formal contract within ten (10) days from the date of the notice of acceptance of this bid, and in case the undersigned fails or neglects to appear within the specified time to execute the contract, the undersigned will be considered as having abandoned the contract, and the bid bond accompanying this bid will be forfeited to the Owner by reason of such failure on the part of the undersigned.

11. The undersigned further agrees to commence with the work under the contract in accordance with the date of commencement of the Work established in the Notice to Proceed.

12. The undersigned further agrees that the bid security may be retained by the Owner and that said bid guarantee shall remain with the Owner until the contract has been executed by the Owner.

13. The undersigned has checked all of the above figures, and understands that the Owner will not be responsible for any errors or omissions on the part of the undersigned in preparing this bid.

14. In submitting this bid, it is understood that the right is reserved by the Owner to reject any or all bids and waive any informalities and irregularities in connection therewith. It is agreed that this bid may not be withdrawn for a period of forty-five (45) days from the date and time of opening.

15. The undersigned declares that the person or persons signing this Bid Form is/are fully authorized to sign on behalf of the firm listed and to fully bind the firm listed to all the conditions and provisions thereof.

16. It is agreed that no person or persons or company other than the firm listed below or as otherwise indicated has any interest whatsoever in this bid or the contract that may be entered into as a result of the bid and that in all respects the proposal is legal and firm, submitted in good faith without collusion for fraud.

17. It is agreed that the undersigned has complied or will comply with all requirements of local, state and national laws, and that no legal requirement has been or will be violated in making or accepting this bid in awarding the contract to him and/or in the prosecution of the work required.

18. CONFLICT OF INTEREST:

I certify no member of the School Board or District employee, or spouse or other member of his/her household shall have any undisclosed interest as noted in paragraph entitled Conflict Of Interest (Section 00100). By and for the bidder:

Signature: _____

19. APPRENTICESHIP UTILIZATION AFFIDAVIT (FOR BIDS OVER $100,000)

Pursuant to School Board Policy 3311.1.2, Use of Apprentices, I _____

the undersigned Principal for _____

on Solicitation _____ certify:

A. I understand that Anchorage School District ("ASD") School Board Policy 3311.1.2 states, "For capital maintenance and construction projects with an estimated total cost of more than $100,000, the Anchorage School District shall require that no less than fifteen percent (15%) of the total hours worked on the project shall be performed by apprentices enrolled in a federally registered or State of Alaska-approved apprenticeship program. This requirement shall only apply to crafts for which an Alaskan federally registered apprenticeship program exists."

B. I will ensure that apprentices employed by the prime and sub-contractors, in the eligible trades categories, will provide no less than fifteen percent (15%) of the aggregate labor hours of those eligible trades categories.

C. I understand that if awarded a contract, ASD will audit the prime contractor at 30-day intervals for contracts from $100,001 to $5,000,000 and 90-day intervals for contracts exceeding $5,000,000 and ASD reserves the right to audit at random intervals as needed.

D. I understand ASD will conduct random site inspections to determine that employed apprentices are working at the project site.

E. I understand that if I am awarded a contract ASD will require the following specific reporting requirements during the contract performance period to ensure that the 15% apprenticeship utilization requirement is met:
   a. List of the apprentices the prime contractor intends to use to meet the utilization goal, and the Alaskan federally registered apprenticeship programs to which they belong (Apprenticeship Utilization Form);
   b. List of the subcontractors that the prime contractor will use on this project;
   c. List of the apprentices the subcontractor intends to use to meet the utilization goal required by the prime contractor, and the apprenticeship programs they belong to (Apprenticeship Utilization Form);
   d. Submission of Apprenticeship Utilization Program Calculations Form, to be submitted by the prime contractor, at 30-day intervals for contracts from $100,001 to $5,000,000 and 90-day intervals for contracts exceeding $5,000,000, consisting of a compliance spreadsheet, with supporting documents demonstrating compliance by both the prime contractor and all subcontractors, identifying the trades categories that are subject to the utilization requirement, apprentice employees used to meet the goals, and apprentice hours calculation showing compliance with the required 15% utilization when compared to total hours worked in the eligible trades categories.

F. I understand a non-compliance penalty for projects from $100,001 to $5,000,000 will be assessed at each 30-day audit per the Penalty Table, if I am found to be non-compliant during the contract period.
   a. Failure to comply at 1st 30-day audit will result in a penalty per the Penalty Table, which will be deducted from the prime contractor's invoice.
   b. Failure to comply in a consecutive 2nd 30-day audit will result in a penalty per the Penalty Table, which will be deducted from the prime contractor's invoice.
   c. Failure to comply in a consecutive 3rd 30-day audit will result in a penalty per the Penalty Table, which will be deducted from the prime contractor's invoice.

d. Failure to comply in a consecutive 4th 30-day audit will result in a penalty per the Penalty Table, which will be deducted from the prime contractor's invoice, and may result in a finding of non-responsibility on future bidding. (This penalty will repeat for any future non-compliance.)

G. I understand a penalty for projects exceeding $5,000,000 will be assessed at each 90-day audit, if I am found to be non-compliant during the contract period.
   a. Failure to comply at 1st 90-day audit will result in a penalty per the Penalty Table, which will be deducted from the prime contractor's invoice.
   b. Failure to comply in a consecutive 2nd 90-day audit will result in a penalty per the Penalty Table, which will be deducted from the prime contractor's invoice.
   c. Failure to comply in a consecutive 3rd 90-day audit will result in a penalty per the Penalty Table, which will be deducted from the prime contractor's invoice.
   d. Failure to comply in a consecutive 4th 90-day audit will result in a penalty per the Penalty Table, which will be deducted from the prime contractor's invoice, and may result in a finding of non-responsibility on future bidding. (This penalty will repeat for any future non-compliance.)

H. Application of the Penalty Table:
   a. Advancement of penalties in the Penalty Table will only be assessed for consecutive non-compliance. If the contractor gets back into compliance, any future non-compliance will be assessed at the beginning step of the Penalty Table, per the applicable contract threshold category.

I. Lack of Apprentice(s) availability:
   a. If a contractor is awarded a contract but cannot meet the apprenticeship utilization requirement, and fail an audit, the contractor will have the opportunity to request a waiver from the apprenticeship utilization requirement. A waiver will only be granted if the contractor can factually demonstrate that the cause was from a lack of available apprentices in eligible trades categories.

J. ASD will provide the List of Alaskan Federal Registered Apprenticeship Programs, which contains the crafts/trades categories within those federally registered programs. Once per year, ASD will receive the updated List of Alaskan Federal Registered Apprenticeship Programs from the Federal Department of Labor to capture any new Alaskan Federally Registered Apprenticeship Programs that have been added, or to capture any that have been dissolved or discontinued. The List of Alaskan Federal Registered Apprenticeship Programs provided to ASD by the Federal Department of Labor will be posted on ASD's website, as contained in the solicitation, so contractors have access to it.

K. Definitions:
   a. **Alaskan Federally Registered Apprenticeship Programs** are programs approved by the Federal Department of Labor, US DOL Office of Apprenticeship.
   b. **Eligible Trades Categories** are the crafts/trades categories that fall under an Alaskan Federally Registered Apprenticeship Program. Eligible Trades Categories will be the categories measured for aggregate project hours and apprentice hours to establish the apprenticeship utilization percentage.
   c. **The List of Alaskan Federal Registered Apprenticeship Programs** is a current list provided by ASD to contractors that shows the Alaskan Federally Registered Apprenticeship Programs and the eligible trades categories under those programs. That current list will be the list in effect and in force during the issuance of the solicitation. Any changes to the list will affect future solicitations and will not be retroactive to prior solicitations.
   d. **Random Site Inspections** are defined as non-scheduled site inspections, in which ASD's representative will visit the project site to establish if apprentices are physically

on-site. ASD will provide a minimum of 24 hours' notice to contractors prior to the site inspections.

e. **Consecutive Non-Compliance** is when a contractor consecutively fails to meet the required apprenticeship utilization percentage. If a contractor fails an audit, but then passes the next audit, any future non-compliance will be addressed at the first step of the Penalty Table per the contract values in the table.

f. **The Measurement of Aggregate Apprenticeship Utilization Hours** is defined by the following. Compliance will be audited at 30-day intervals for projects from $100, 001 to $5,000,000, and 90-day intervals for projects over $5, 000,000. Each 30 or 90 day audit period will be measured independently for aggregate apprenticeship utilization hours. If a contractor does not meet the 15% apprenticeship utilization requirement in an audit period, a penalty will be assessed, per the penalty table. However, the deficiency in percentage of apprenticeship utilization hours, will not be carried forward from one audit period to the next. Contractors will only be required to meet the 15% apprenticeship utilization requirement in each audit period, which will be measured independently. In addition, if the aggregate hours for all audit periods for the entire project are 15% or greater, any previously assessed penalties for non-compliance in an audit period will be rescinded.

g. **Finding of non-responsibility:** If ASD determines a contractor to be non-responsible, they will not be permitted to bid on ASD projects.

IN WITNESS WHEREOF, the signature of the undersigned Contractor has been hereunto set this

_____ day of _____, 20___, at _____, Alaska.

Signature: _____

Printed Name: _____

I, _____, being first duly sworn, say that I am the agent for and executed the foregoing under authority of said company to do so; that I have read the same, know the contents thereof, and the matter set forth therein are as I truly believe.

Signature: _____

Subscribed and sworn to before me this _____ day of _____, 20___, at _____, Alaska.

Notary Public in and for: _____

My Commission Expires: _____.

20. LICENSE NUMBER(S):

Alaska Business License Number: _____

Alaska General or Specialty Contracting License Number: _____

Respectfully Submitted, this _____ day of _____, 20__.

Firm Name:_____

Federal Tax ID: _____

Address: _____

_____

Signature:_____

Name (Typed):_____

Title: _____

CORPORATE SEAL (if applicable)

ENCLOSURES:

1. Bid Guarantee (in the form and amount specified or required, include Power of Attorney For Surety)

END OF SECTION

ASBESTOS ABATEMENT SUBCONTRACTOR'S CERTIFICATE OF INSURANCE

PART 1. GENERAL

1.01 REFERENCE:

A. As part of the Owner-Contractor Agreement (Document 00500), the Contractor shall cause its asbestos abatement subcontractor to submit a Certificate of Insurance on an Anchorage School District Form on which the Subcontractor's insurer certifies that the Subcontractor has insurance coverage to the same extent, with the same endorsements, and with the same limits and under the same conditions as those required of the Contractor pursuant to General Conditions of the Owner-Contractor Agreement, Article 11, with the exception of builder's risk insurance and umbrella liability insurance. The Contractor shall submit to the Owner the Subcontractor's completed Certificate of Insurance within five (5) days after the Owner's approval of the proposed Asbestos Abatement Subcontractor.

PART 2. (NOT USED)

PART 3. (NOT USED)

END OF SECTION

OWNER – CONTRACTOR AGREEMENT FORM

REFERENCE:

1. The form of agreement between the Owner and the Contractor shall be the form bound herein.

2. The Agreement shall be executed in duplicate.

CONTRACT NO. XXCXXXX
SCHOOL PROJECT TITLE
ITB 202X-8XX
ASD PROJECT NO. XXXXXX

Board Memo No.: N/A or Number
Date of Contract: Date of Contract

Company
Address
City, State, Zip

(_) Sole Proprietorship
(_) Partnership
(_) Incorporated in the State of Alaska

OWNER: ANCHORAGE SCHOOL DISTRICT, ANCHORAGE ALASKA

CONTRACT FOR: ITB SCHOOL PROJECT TITLE

Amount of Contract: Amount of Contract in words Dollars and No Cents

Base Bid:	$xxx,xxx.xx
Additive Alternate 1:	$xxx,xxx.xx
Siemens Allowance:	$xxx,xxx.xx
Total:	$xxx,xxx.xx

Statement of Work: The Contractor shall furnish all labor, equipment and materials and perform the work above described for the amount stated in strict accordance with Contract Documents, all of which are made a part of this Contract and designated as follows:

CONTRACT DOCUMENTS

I. This Contract, consisting of two (2) pages.
II. Section 00620 Performance Bond and Payment Bond, consisting of nine (9) pages, dated (date of contract) and attached Power of Attorney for Surety.
III. Contractor signed Bid Form, Section 00300 and signed Addendum/a consisting of four (4) or five (5) pages.
IV. Alaska Sex Offender/Child Kidnapper Registry Contractor Certification consisting of one (1) page.
V. Certificates of Insurance.
VI. Invitation to Bid (number) Project Manual dated (date) and all Drawings are hereby incorporated by reference as if in full text.

In the event of a conflict between any of the Contract Documents and the provisions of any purchase order of materials or service request issued in connection with this Contract, the provisions of the Contract Documents shall prevail.

Work shall be started in accordance with the Notice to Proceed. Time being of the essence, work shall be completed in accordance with the Project Schedule Milestone Dates set forth under Section 00200 thereof.

The ASD Project Manager for this Contract is: Insert Name of Project Manager Cell (907) XXX-XXXX, Office (907) XXX-XXXX and insert email address.

SAMPLE

The attached performance and payment bond is in due form according to law, and is hereby approved.

_____ Date: _____
Anchorage School District Attorney

IN WITNESS WHEREOF, the parties hereto have executed this Contract as of this date entered on the first page hereof.

ANCHORAGE SCHOOL DISTRICT

_____
David Whiting, Date
Senior Director of Purchasing/Warehouse

CONTRACTOR BUSINESS NAME

_____
Contractor Signature Date

_____
Contractor Print Name and Title

Corporate Seal

Account Code(s):

END OF CONTRACT

END OF SECTION

SAMPLE

BID BOND FORM

REFERENCE:

1. If the Bid Guarantee is submitted on Bond Form, the Bid Bond shall be the form as bound herein.

BID BOND

KNOW ALL MEN BY THESE PRESENT that we, _____ as
Contractor

PRINCIPAL, and _____,a corporation duly organized under the laws
Surety

of the State of _____, as SURETY/OBLIGOR authorized to transact surety business in the state of Alaska, are held and firmly bound unto the ANCHORAGE SCHOOL DISTRICT, as OBLIGEE, in the amount of 5% of the Base Bid Amount for payment whereof PRINCIPAL and SURETY bind ourselves, our heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these present.

WHEREAS, the PRINCIPAL is herewith submitting its proposal for _____

_____

The condition of this obligation is such that if the PRINCIPAL will, within the time required, enter into a formal contract, and give a good and sufficient bond to secure the performance of the terms and conditions of the contract, then this Obligation to be void; otherwise, the PRINCIPAL and SURETY will pay unto the OBLIGEE the amount stated above.

OWNER

Anchorage School District
4919 Van Buren Street
Anchorage, Alaska 99517

CONSTRUCTION PROJECT

Solicitation No.: _____

Location: _____

_____

CONTRACTOR

Name: _____

Address: _____

City/State:_____

SURETY

Name: _____

Address: _____

City/State: _____

IN TESTIMONY WHEREOF, the parties hereunto have caused the execution of this bond on the _____ day of _____, 20____.

PRINCIPAL	**SURETY**
_____	_____
Contractor Name	Corporate Surety Name (Seal)
By: _____	By: _____
Signature	Signature
_____	_____
Typed Name and Title	Typed Name, Attorney-in-fact
_____	
WITNESS AS TO PRINCIPAL	

Note: Attach Power of Attorney for Surety Signator.

END OF SECTION

PERFORMANCE BOND AND PAYMENT BOND

REFERENCE:

1. The Performance Bond and Payment Bond shall be the forms as bound herein.

CONSTRUCTION PERFORMANCE BOND

KNOW ALL MEN BY THESE PRESENT that we, _____ as
Contractor

PRINCIPAL, and _____, a corporation duly organized under the laws
Surety

of the State of _____, as SURETY/OBLIGOR authorized to transact surety business in the state of Alaska, are held and firmly bound unto the ANCHORAGE SCHOOL DISTRICT, as OBLIGEE, in the amount

of _____

_____ Dollars

($_____), for payment whereof PRINCIPAL and SURETY bind ourselves, our heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these present.

This Construction Performance Bond ("Bond") is entered into by and between the undersigned parties to ensure the faithful performance of the Construction Contract listed below.

OWNER

Anchorage School District

4919 Van Buren Street

Anchorage, Alaska 99517

CONSTRUCTION PROJECT

Solicitation No.: _____

Location: _____

BOND

Number: _____

Date: _____

Amount: _____

CONSTRUCTION CONTRACT

Number: _____

Date: _____

Amount: _____

CONTRACTOR

Name:_____

Address:_____

City/State: _____

SURETY

Name: _____

Address: _____

City/State: _____

IN TESTIMONY WHEREOF, the parties hereunto have caused the execution hereof of two (2) original counterparts as the _____ day of _____, 20____.

PRINCIPAL	**SURETY**
_____	_____
Contractor Name	Corporate Surety Name (Seal)
_____	_____
Signature	Signature
_____	_____
Typed Name and Title	Typed Name, Attorney-in-fact

_____
WITNESS AS TO PRINCIPAL

Note: Attach Power of Attorney for Surety Signator.

CONSTRUCTION PERFORMANCE BOND TERMS AND CONDITIONS

1. The CONTRACTOR and the SURETY, jointly and severally, bind themselves, their heirs, executors, administrators, successors and assigns to the OWNER for the complete and proper performance of the Construction Contract, which is incorporated herein by reference.

2. If the CONTRACTOR completely and properly performs all of its obligations under the Construction Contract, the SURETY and the CONTRACTOR shall have no obligation under this Bond.

3. If there is no OWNER Default, the SURETY's obligation under this Bond shall arise after:

   a. OWNER has declared a CONTRACTOR Default under the Construction Contract pursuant to the terms of the Construction Contract; and

   b. The OWNER has agreed to pay the Balance of the Contract Sum to:

      i. The SURETY in accordance with the terms of this Bond and the Construction Contract; or

      ii. A contractor selected to perform the Construction Contract in accordance with the terms of this Bond and the Construction Contract.

4. When the OWNER has satisfied the conditions of Paragraph 3, the SURETY shall promptly (within thirty (30) days) and at the SURETY's expense elect to take one of the following actions:

   a. Arrange for the CONTRACTOR, with consent of the OWNER, to perform and complete the Construction Contract (but OWNER may withhold consent, in which case the SURETY must election option 4b, 4c or 4d, below); or

   b. Undertake to perform and complete the Construction Contract itself, through its agents or through independent contractors; or

   c. Obtain bids from qualified contractors acceptable to OWNER for a contract for performance and completion of the Construction Contract, and, upon determination by OWNER of the lowest responsive and responsible bidder, arrange for a contract to be prepared for execution by OWNER and the contractor selected with OWNER's concurrence, to be secured with performance and payment bonds executed by a qualified SURETY equivalent to the bonds issued on the Construction Contract; and, if the SURETY's obligations defined in Paragraph 6 exceed the Balance of the Contract Sum, then the SURETY shall pay to OWNER the amount of such excess; or

   d. Waive its right to perform and complete, arrange for completion, or obtain a new contractor and, with reasonable promptness under the circumstances and after investigation and consultation with OWNER, determine in good faith the amount for which it may then be liable to OWNER under Paragraph 6 for the performance and completion of the Construction Contract and, as soon as practicable after the amount is determined, tender payment therefore to OWNER with full explanation of the payment's calculation. If OWNER accepts the SURETY's tender under this paragraph 4.d, OWNER may still hold SURETY liable for future damages then unknown or unliquidated resulting from the CONTRACTOR Default. If OWNER disputes the amount of the SURETY's tender under this paragraph 4.d, OWNER may exercise all remedies available to it at law to enforce the SURETY's liability under paragraph 6.

5. If the SURETY does not proceed as provided in Paragraph 4, then the SURETY shall be deemed to be in default on this Bond ten (10) days after receipt of an additional written notice from OWNER to the SURETY demanding that the SURETY perform its obligations under this Bond. At all times OWNER shall be entitled to enforce any remedy available to OWNER at law or under the Construction Contract including, without limitation, and by way of example only, rights to perform work, protect work, mitigate damages, or coordinate work with other consultants or contractors.

6. The SURETY's monetary obligation under this Bond is limited by the amount of this Bond. Subject to these limits, the SURETY's obligations under this Bond are commensurate with the obligations of the CONTRACTOR under the Construction Contract. The SURETY's obligations shall include but are not limited to:

    a. The responsibilities of the CONTRACTOR under the Construction Contract for completion of the Construction Contract and correction of defective work;

    b. The responsibilities of the CONTRACTOR under the Construction Contract to pay liquidated damages, and for damages for which no liquidated damages are specified in the Construction Contract, actual damages caused by non-performance of the Construction Contract, including but not limited to, all valid and proper back charges, offsets, payments, indemnities or other damages;

    c. Additional legal, design professional and delay costs resulting from the CONTRACTOR Default or resulting from the actions or failure to act of the SURETY under Paragraph 4.

7. No right of action shall accrue on this Bond to any person or entity other than OWNER or its heirs, executors, administrators, or successors.

8. The SURETY hereby waives notice of any change, alteration or addition to the Construction Contract or to related subcontracts, purchase orders and other obligations, including changes of time. The SURETY consents to all terms of the Construction Contract, including provisions on changes to the Contract. No extension of time, change, alteration, modification, deletion, or addition to the Contract Documents, or of the work required thereunder, shall release or exonerate SURETY on this Bond or in any way affect the obligations of SURETY on this Bond.

9. Any proceeding, legal or equitable, under the Bond shall be instituted in the Superior Court for the State of Alaska, Third Judicial District.

10. Notice to the SURETY, OWNER or the CONTRACTOR shall be mailed or delivered to the address shown on the front page.

11. Any provision in this Bond conflicting with any statutory or regulatory requirement shall be deemed deleted herefrom and provisions conforming to such statutory requirement shall be deemed incorporated herein.

12. Definitions.

    a. Balance of the Contract Sum: The total amount payable by OWNER to the CONTRACTOR pursuant to the terms of the Construction Contract after all proper adjustments have been made under the Construction Contract, for example, deductions for progress payments made, and increases/decreases for approved modifications to the Construction Contract.

    b. Construction Contract: The agreement between OWNER and the CONTRACTOR identified on the signature page, including all Contract Documents and changes thereto.

c. CONTRACTOR Default: Material failure of the CONTRACTOR which has neither been remedied nor waived, to perform or otherwise to comply with the terms of the Construction Contract, including but not limited to, the provisions of Article 14 of the General Conditions of the Construction Contract.

d. OWNER Default: Material failure of OWNER, which has neither been remedied nor waived, to pay the CONTRACTOR progress payments due under the Construction Contract or to perform other material terms of the Construction Contract, if such failure is the cause of the asserted CONTRACTOR Default and is sufficient to justify CONTRACTOR termination of the Construction Contract.

PAYMENT BOND

KNOW ALL MEN BY THESE PRESENT that we, _____ as
Contractor

PRINCIPAL, and _____ a corporation duly organized under the laws
Surety

of the State of _____, as SURETY/OBLIGOR authorized to transact surety business in the state of Alaska, are held and firmly bound unto the ANCHORAGE SCHOOL DISTRICT, as OBLIGEE, in the amount

of _____ Dollars

($_____), for payment whereof PRINCIPAL and SURETY bind ourselves, our heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these present.
This Payment Bond ("Bond") is entered into by and between the undersigned parties to ensure the faithful performance of the Construction Contract listed below.

OWNER

Anchorage School District

4919 Van Buren Street

Anchorage, Alaska 99517

CONSTRUCTION PROJECT

Solicitation No.: _____

Location: _____

BOND

Number:_____

Date:_____

Amount: _____

CONSTRUCTION CONTRACT

Number: _____

Date: _____

Amount: _____

CONTRACTOR

Name:_____

Address: _____

City/State:_____

SURETY

Name: _____

Address: _____

City/State: _____

IN TESTIMONY WHEREOF, the parties hereunto have caused the execution hereof of two (2) original counterparts as the _____ day of_____, 20_____.

PRINCIPAL	**SURETY**
_____	_____
Contractor Name	Corporate Surety Name (Seal)
_____	_____
Signature	Signature
_____	_____
Typed Name and Title	Typed Name, Attorney-in-fact

_____
WITNESS AS TO PRINCIPAL

Note: Attach Power of Attorney for Surety Signator.

PAYMENT BOND TERMS AND CONDITIONS

The condition of this obligation is such that if the PRINCIPAL shall promptly make payment to all Claimants who furnish labor or materials in the prosecution of the Work provided for in the Construction Contract, then this obligation shall be void; otherwise, it shall remain in full force and effect.

This Bond has been furnished to comply with Alaska Statute 36.25.010, and to allow enforcement rights pursuant to Alaska Statute 36.25.020. Any provisions in this Bond conflicting with said statutory requirements shall be deemed deleted herefrom and provisions conforming to such statutory requirements shall be deemed incorporated herein.

The SURETY hereby waives notice of any change, alteration or addition to the Construction Contract or to related subcontracts, purchase orders and other obligations, including changes of time. The SURETY consents to all terms of the Construction Contract, including provisions on changes to the Contract. No extension of time, change, alteration, modification, deletion, or addition to the Contract Documents, or of the work required thereunder, shall release of exonerate SURETY on this Bond or in any way affect the obligations of SURETY on this Bond.

END OF SECTION

SAMPLE FORMS AND CERTIFICATES

A. GENERAL

A.01 RELATED WORK SPECIFIED ELSEWHERE

A. Comply with the contract conditions requirements and specified administrative procedures in closing-out work.

A.02 RELATED REQUIREMENTS SPECIFIED ELSEWHERE

A. Section 01700: Project Close-out

B. General and Supplementary General Conditions

A.03 APPLICATION AND CERTIFICATE FOR PAYMENT

A. Use Anchorage School District Form 100, 100A, 100B, and 100C attached herein.

A.04 CERTIFICATION OF SUBSTANTIAL COMPLETION

A. Use Anchorage School District Form 101 attached herein.

A.05 CONTRACTOR'S AFFIDAVIT OF PAYMENT OF DEBTS AND CLAIMS

A. Use Anchorage School District Form 102 attached herein.

A.06 RELEASE ON CONTRACTS

A. Use Anchorage School District Form 103 attached herein.

A.07 CONSENT OF SURETY COMPANY TO FINAL PAYMENT

A. Use Anchorage School District Form 104 attached herein.

A.08 CONSENT OF SURETY TO REDUCTION IN OR PARTIAL RELEASE OF RETAINAGE

A. Use Anchorage School District Form 105 attached herein.

A.09 CERTIFICATES OF INSURANCE

A. The contractor’s Certificate of Insurance shall be on an industry standard form with, as a minimum, the categories and clauses on the Accord form with contractual clauses for contract number and description, subrogation waiver, additional insured and cancellation notification.

A.10 REQUEST FOR INFORMATION

A. Contractor’s requests for information shall be on Anchorage School District request for information forms.

A.11 PRIME CONTRACT POTENTIAL CHANGE ORDER (PCO)

A. Proposals will be executed on Anchorage School District PCO forms.

A.12 CERTIFICATE OF COMPLIANCE

A. The Contractor shall submit a notarized Certificate of Compliance, contained in this section, with his application for Final Payment.

A.13 WARRANTY OF WORK

A. The Contractor shall furnish to the Owner a notarized Warranty of Work after Final Payment, contained in this section, with his application for Final Payment.

A.14 AHERA EXCLUSION DOCUMENT

A. The Contractor shall furnish to the Owner a signed AHERA Exclusion Document, contained in this section, with his application for Final Payment.

A.15 PRIME CONTRACT CHANGE ORDER (PCCO)

A. Change Orders/Contract Modifications will be executed on Anchorage School District PCCO forms.

A.16 CONTRACTOR'S QUALITY CONTROL REPORT (CQC)

A. The Contractor shall complete the CQC Report in accordance with Section 01400.

A.17 DEPARTMENT OF LABOR NOTICE OF WORK

A. The Contractor shall furnish to the Department of Labor a Notice of Work prior to start of construction.

A.18 DEPARTMENT OF REVENUE TAX CLEARANCE REQUEST FORM

A. For projects funded through the Department of Education (debt reimbursement or DEED grants), the Contractor shall furnish to the Owner a Tax Clearance Request Form approved by the Department of Revenue, contained in this section, with his application for Final Payment.

A.19 DEPARTMENT OF LABOR TAX CLEARANCE REQUEST FORM

A. For projects funded through the Department of Education (debt reimbursement or DEED grants), the Contractor shall furnish to the Owner a Tax Clearance Request Form approved by the Department of Labor, contained in this section, with his application for Final Payment.

A.20 SUBMITTAL CONTROL FORM

A. Submittals will be executed on Anchorage School District Submittal Control Forms.

A.21 STATE OF ALASKA SEX OFFENDER/CHILD KIDNAPPER REGISTRY CONTRACTOR CERTIFICATION

A. Contractor certifies contractor is familiar with and is in compliance with Anchorage School Board Policy 3515.5, that no employee or agent of contractor who will be on district property is registered as a sex offender or child kidnapper in Alaska [Alaska Department of Public Safety "Sex Offender/Child Kidnapper Registry"] or in any other state in which the

employee or agent previously lived or worked, and that, to contractors knowledge, no employee or agent is a convicted sex offender or child kidnapper.

A.22 STATE OF ALASKA SEX OFFENDER/CHILD KIDNAPPER REGISTRY SUBCONTRACTOR CERTIFICATION

A. Subcontractor certifies subcontractor is familiar with and is in compliance with Anchorage School Board Policy 3515.5, that no employee or agent of subcontractor who will be on district property is registered as a sex offender or child kidnapper in Alaska [Alaska Department of Public Safety “Sex Offender/Child Kidnapper Registry”] or in any other state in which the employee or agent previously lived or worked, and that, to subcontractors knowledge, no employee or agent is a convicted sex offender or child kidnapper.

A.23 STATE OF ALASKA SEX OFFENDER/CHILD KIDNAPPER REGISTRY SUB-SUBCONTRACTOR CERTIFICATION

A. Sub-subcontractor certifies sub-subcontractor is familiar with and is in compliance with Anchorage School Board Policy 3515.5, that no employee or agent of sub-subcontractor who will be on district property is registered as a sex offender or child kidnapper in Alaska [Alaska Department of Public Safety “Sex Offender/Child Kidnapper Registry”] or in any other state in which the employee or agent previously lived or worked, and that, to sub-subcontractors knowledge, no employee or agent is a convicted sex offender or child kidnapper.

A.24 LIST OF FEDERALLY REGISTERED ALASKAN APPRENTICESHIP PROGRAMS

A. This list from the Federal Department of Labor will provide contractors with the list Alaskan apprenticeship programs and crafts/trades categories that are subject to ASD’s AUP.

A.25 APPRENTICESHIP UTILIZATION FORM

A. The Prime Contractor will list the crafts/trades categories required to complete the project that have Alaskan Federally Registered Apprenticeship Programs. This list will include all crafts/trades categories for both the prime and subcontractors.

A.26 APPRENTICESHIP UTILIZATION PROGRAM CALCULATION FROM

A. This form will be submitted by the prime contractors to demonstrate compliance with the apprenticeship utilization percentage for both prime and subcontractors on the project.

A.27 PENALTY TABLE

A. This table lists the penalties for non-compliance with the AUP.

ANCHORAGE SCHOOL DISTRICT
APPLICATION FOR PAYMENT

Project Name: Contract #:
ITB/RFP No.: Application #:
Name of Contractor: Application date:
Address: Period to:

COMPUTATION OF PAYMENT DUE

(a) Original contract amount (ASD 100A)	$	-
(b) Net Change by Change Orders (ASD 100B)		$0.00
(c) Adjusted contract amount to date (a+b)	$	-
(d) Work Completed to Date (ASD 100B)	$	-
(e) Materials Stored (ASD 100B)	$	-
(f) Total Completed and Stored To Date (d+e)	$	-
(g) Less: amount retained in accordance with contract terms	$	-
(h) Net amount earned on contract work to date (f-g)	$	-
(i) Less: amount of previous payments (ASD 100B)		$0.00
(j) CURRENT PAYMENT DUE (h-I)	$	-
(k) Balance to Finish (c-h)	$	-

CERTIFICATION OF CONTRACTOR

According to the best of my knowledge and belief, I certify that all items and amounts shown on the face of this Application for Payment are correct; that all work has been performed and/or material supplied in full accordance with the requirements of the referenced Contract, and/or duly authorized deviations, substitutions, alterations, and/or additions; that payment has been made for all materials received and work performed for which previous pay applications were approved; that no part of the "Balance Due This Payment" has been received and that it is currently due.

_____ By _____
(Contractor) (Signature of Authorized Representative)

_____ Title: _____
Date

CERTIFICATION OF ARCHITECT

According to the best of my knowledge and belief, and based on on-site observations , I certify that the work completed as shown on ASD 100B has progressed as indicated, the quality of work is in accordance with the Contract Documents, and the Contractor is entitled to payment of the Current Payment Due shown above.

_____ _____
Date (Signature of Architect)

APPROVED FOR PAYMENT

_____ _____
Date (ASD Project Manager)

ASD 100 (1/15)

ANCHORAGE SCHOOL DISTRICT
APPLICATION FOR PAYMENT
Summary of Original Contract, Change Orders, and Payments

Project Name:
ITB/RFP No.:
Name of Contractor:

Contract #:
Application #:
Application date:
Period to:

Original Contract

Date	No.	Description	Change Orders	Payments	Contract Balance	Comments

ANCHORAGE SCHOOL DISTRICT
APPLICATION FOR PAYMENT
Detail of Schedule of Values and Work Completed

Project Name:
ITB/RFP No.:
Name of Contractor:

Contract #:
Application #:
Application date:
Period to:

A	B	C	D	E	F	G		H
Item	Description of Work	Scheduled Value	WORK COMPLETED		Materials Presently Stored (Not in D or E)	TOTAL Completed and Stored to Date (D+E+F)	% (G ÷ C)	Balance to Finish (C + G)
			From Prior Application (D+E)	This Period				
						$ -	#DIV/0!	$ -
						$ -	#DIV/0!	$ -
						$ -	#DIV/0!	$ -

ANCHORAGE SCHOOL DISTRICT
APPLICATION FOR PAYMENT
Detail of Schedule of Values and Work Completed

Project Name:
ITB/RFP No.:
Name of Contractor:

Contract #:
Application #:
Application date:
Period to:

A	B	C	D	E	F	G		H
Item	Description of Work	Scheduled Value	WORK COMPLETED		Materials Presently Stored (Not in D or E)	TOTAL Completed and Stored to Date (D+E+F)	% (G ÷ C)	Balance to Finish (C + G)
			From Prior Application (D+E)	This Period				
						$ -	#DIV/0!	$ -
						$ -	#DIV/0!	$ -
						$ -	#DIV/0!	$ -
						$ -	#DIV/0!	$ -
						$ -	#DIV/0!	$ -
						$ -	#DIV/0!	$ -
						$ -	#DIV/0!	$ -
						$ -	#DIV/0!	$ -
						$ -	#DIV/0!	$ -
						$ -	#DIV/0!	$ -
						$ -	#DIV/0!	$ -
						$ -	#DIV/0!	$ -
						$ -	#DIV/0!	$ -
						$ -	#DIV/0!	$ -
						$ -	#DIV/0!	$ -
						$ -	#DIV/0!	$ -
						$ -	#DIV/0!	$ -
						$ -	#DIV/0!	$ -
						$ -	#DIV/0!	$ -
						$ -	#DIV/0!	$ -
						$ -	#DIV/0!	$ -
						$ -	#DIV/0!	$ -
						$ -	#DIV/0!	$ -
						$ -	#DIV/0!	$ -
						$ -	#DIV/0!	$ -
						$ -	#DIV/0!	$ -
						$ -	#DIV/0!	$ -
						$ -	#DIV/0!	$ -
						$ -	#DIV/0!	$ -
						$ -	#DIV/0!	$ -
						$ -	#DIV/0!	$ -
						$ -	#DIV/0!	$ -
						$ -	#DIV/0!	$ -
						$ -	#DIV/0!	$ -
						$ -	#DIV/0!	$ -
						$ -	#DIV/0!	$ -
	TOTAL CONTRACT	$ -	$ -	$ -	$ -	$ -		$ -

ASD# 100B (1/15) Continuation
Sch. of Values/
Work Completed

Page 2
of Detail Schedule

ANCHORAGE SCHOOL DISTRICT
APPLICATION FOR PAYMENT
Schedule of Stored Materials

Project Name:
ITB/RFP No.:
Name of Contractor:

Contract #:
Application #:
Application date:
Period to:

INVOICE #	VENDOR	DESCRIPTION	AMOUNT STORED AT END OF THIS PERIOD
		TOTAL STORED MATERIALS	$ -

ASD 100C (1/15) Continuation
Stored Material

Page # 1

CERTIFICATE OF SUBSTANTIAL COMPLETION

Project:_____ Contract Number: _____

Contractor: _____ Contract Date: _____

Architect: _____ Date of Issuance: _____

Owner: ANCHORAGE SCHOOL DISTRICT
1301 Labar Street
Anchorage, Alaska 99515

Project Description:
The work performed under this contract has been reviewed and found to be substantially complete. The date of Substantial Completion is hereby established as: _____

Definition of Date of Substantial Completion:
The date of substantial completion of the project is the date certified by the Owner when the work is substantially complete in accordance with, and defined in the Contract Documents.

A list of items to be completed or corrected, prepared by the Owner and verified and amended by the Architect is appended hereto. The failure to include any items or such list does not alter the responsibility of the Contractor to complete the project in accordance with the Contract Documents.

The Contractor will complete or correct the work on the list of items appended hereto within 30 days from the date of substantial completion.

The responsibilities of the Owner and the Contractor for maintenance, heat, utilities, and insurance shall be as follows: _____

_____

In reliance upon the certification of the Contractor and the Architect, the Owner hereby accepts the project as substantially complete. In accordance with the Contract Documents, the Owner hereby elects to assume occupancy of _____

_____ at_____ a.m./p.m. on
_____ .

Owner: **ANCHORAGE SCHOOL DISTRICT**

By: _____ Title: _____ Date: _____

Architect: _____

By: _____ Title: _____ Date: _____

Contractor: _____

By: _____ Title: _____ Date: _____

ASD 101 (01/03)

CONTRACTOR'S AFFIDAVIT OF PAYMENT OF DEBTS AND CLAIMS
ANCHORAGE SCHOOL DISTRICT

WHEREAS, by the terms of a contract dated entered into by the Anchorage School District, and for the construction of

The undersigned, pursant to the General Conditions of the Contract for the construction, , hereby certifies that, except as listed below, he has paid in full or has otherwise satisied all obligations for all materials and equipment furnished, for all work, labor, and services performed, and for all known indebtness and claims against the Contractor for damages arising in any manner in connection with the performance of the Contract referenced above for which the District or his property might in any way be held responsible.

EXCEPTIONS:

IN WITNESS WHEREOF, the seal of the undersigned Contractor have been hereunto set this day of , at .

By

being first duly sworn, say that I am the agent for and executed the foregoing under authority of said company to do so; that I have read the same, know the contents thereof, and the matters set forth therein are as I truly believe.

By

Subscribed and sworn to before me this day of , , at .

Notary Public in and for

My Commission Expires

ASDF Form 102

RELEASE ON CONTRACT
ANCHORAGE SCHOOL DISTRICT

WHEREAS, by the terms of a contract dated _____entered into by the Anchorage School District, and _____for the construction of

_____,

it is provided that:
"Neither the final payment nor the remaining retained percentage shall become due until the Contractor shall provide the Owner (1) with a waiver and release of liens, on the forms provided by the Owner, executed by the Contractor..."

NOW THEREFORE, in consideration of the premises and the payment by the Anchorage School District to the undersigned Contractor of the amounts due under the contract and any changes or modifications thereto, to wit, the sum

of $ _____ _____ Dollars,
(Numbers) (In Words)

the undersigned Contractor hereby releases and forever discharges the Anchorage School District including its property, particularly that real property known as the

_____

of the Anchorage School District, of and from all manner of debts, dues and sum or sums of money, accounts, claims, and demands whatsoever, in Law and in equity, under or by virtue of said contract, and warrants good title to all material, supplies and equipment installed or incorporated in the project and all work delivered to the premises, together with all improvements and appurtenances constructed thereon by:

_____ to the Anchorage School District free of any claims, liens or encumbrances. Neither the undersigned nor any person, firm or corporation furnishing material or labor for any work covered by this Contract has any right to a lien upon the premises nor improvement thereon, except:

_

IN WITNESS WHEREOF, the signature of the undersigned Contractor has been hereunto set this

_____day of _____, 20___, at _____, Alaska.

Signature: _____

Printed Name: _____

I, _____, being first duly sworn, say that I am the agent for and executed the foregoing under authority of said company to do so; that I have read the same, know the contents thereof, and the matters set forth therein are as I truly believe.

Signature: _____

Subscribed and sworn to before me this ___day of _____, 20___, at _____, Alaska.

Notary Public in and for _____

My Commission Expires: _____.

ASD Form 103

CONSENT OF SURETY COMPANY TO FINAL PAYMENT

PROJECT: _____ PROJECT NUMBER: _____

CONTRACTOR: _____ CONTRACT DATE: _____

TO: Anchorage School District

In accordance with the provisions of the Contract between the Owner and the Contractor as indicated above:

_____(Surety Company)

on bond of

_____(Contractor)

hereby approves of the final payment to the Contractor, and agrees that final payment to the Contractor shall not relieve the Surety Company of any of its obligations to Anchorage School District, Owner as set forth in said Surety Company's bond. Surety expressly agrees that any and all valid claims of sub-Contractors and all persons supplying labor or materials to the project will be satisfied by Contractor or Surety in a timely manner

IN WITNESS WHEREOF, the Surety Company has hereunto set its hand this

_____ day of _____, 20___.

_____
Name of Surety Company

Attest _____
Signature of Authorized Representative

_____
Title

ASD 104

CONSENT OF SURETY TO REDUCTION IN OR PARTIAL RELEASE OF RETAINAGE ANCHORAGE SCHOOL DISTRICT

PROJECT: **PROJECT NUMBER**:

TO: **Anchorage School District** **CONTRACT DATE**:

CONTRACTOR:

In accordance with the provisions of the Contract between the Owner and the Contractor as indicated above, the:

_____ (Surety Company)

on bond of

_____ (Contractor)

HEREBY APPROVES OF THE REDUCTION IN OR PARTIAL RELEASE OF RETAINAGE to the Contractor as follows:

The surety agrees that such reduction in or partial release of retainage to the Contractor shall not relieve the Surety of any of its obligations to **ANCHORAGE SCHOOL DISTRICT, OWNER**

IN WITNESS WHEREOF, the Surety Company has hereunto set its hand this

day of .

_____
Name of Surety Company

Attest

_____
Signature of Authorized Representative

_____
Title

ASDF Form 105

ACORD®

CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY)

PRODUCER	THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW.	
	INSURERS AFFORDING COVERAGE	NAIC #
INSURED	INSURER A:	
	INSURER B:	
	INSURER C:	
	INSURER D:	
	INSURER E:	

COVERAGES

THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. AGGREGATE LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	ADD'L INSRD	TYPE OF INSURANCE	POLICY NUMBER	POLICY EFFECTIVE DATE (MM/DD/YYYY)	POLICY EXPIRATION DATE (MM/DD/YYYY)	LIMITS	
		GENERAL LIABILITY				EACH OCCURRENCE	$
		COMMERCIAL GENERAL LIABILITY				DAMAGE TO RENTED PREMISES (Ea occurrence)	$
		CLAIMS MADE ☐ OCCUR ☐				MED EXP (Any one person)	$
						PERSONAL & ADV INJURY	$
						GENERAL AGGREGATE	$
		GEN'L AGGREGATE LIMIT APPLIES PER:				PRODUCTS - COMP/OP AGG	$
		POLICY ☐ PRO-JECT ☐ LOC ☐					
		AUTOMOBILE LIABILITY				COMBINED SINGLE LIMIT (Ea accident)	$
		ANY AUTO					
		ALL OWNED AUTOS				BODILY INJURY (Per person)	$
		SCHEDULED AUTOS					
		HIRED AUTOS				BODILY INJURY (Per accident)	$
		NON-OWNED AUTOS					
						PROPERTY DAMAGE (Per accident)	$
		GARAGE LIABILITY				AUTO ONLY - EA ACCIDENT	$
		ANY AUTO				OTHER THAN AUTO ONLY: EA ACC	$
						AGG	$
		EXCESS / UMBRELLA LIABILITY				EACH OCCURRENCE	$
		OCCUR ☐ CLAIMS MADE ☐				AGGREGATE	$
							$
		DEDUCTIBLE					$
		RETENTION $					$
		WORKERS COMPENSATION AND EMPLOYERS' LIABILITY				WC STATU-TORY LIMITS ☐ OTH-ER ☐	
		ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? Y / N ☐				E.L. EACH ACCIDENT	$
		(Mandatory in NH)				E.L. DISEASE - EA EMPLOYEE	$
		If yes, describe under SPECIAL PROVISIONS below				E.L. DISEASE - POLICY LIMIT	$
		OTHER					

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES / EXCLUSIONS ADDED BY ENDORSEMENT / SPECIAL PROVISIONS

CERTIFICATE HOLDER	CANCELLATION
	SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, THE ISSUING INSURER WILL ENDEAVOR TO MAIL _____ DAYS WRITTEN NOTICE TO THE CERTIFICATE HOLDER NAMED TO THE LEFT, BUT FAILURE TO DO SO SHALL IMPOSE NO OBLIGATION OR LIABILITY OF ANY KIND UPON THE INSURER, ITS AGENTS OR REPRESENTATIVES.
	AUTHORIZED REPRESENTATIVE

ACORD 25 (2009/01)

© 1988-2009 ACORD CORPORATION. All rights reserved.
The ACORD name and logo are registered marks of ACORD

SAMPLE

IMPORTANT

If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must be endorsed. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

DISCLAIMER

This Certificate of Insurance does not constitute a contract between the issuing insurer(s), authorized representative or producer, and the certificate holder, nor does it affirmatively or negatively amend, extend or alter the coverage afforded by the policies listed thereon.

SAMPLE

ACORD 25 (2009/01)

Anchorage School District
Facilities Maintenance
1301 Labar Street
Anchorage, Alaska 99515
Phone: (907) 348-5215
Fax: (907) 348-5227

REQUEST FOR INFORMATION
No.

TITLE:

DATE:

PROJECT:

Project No.:

TO:

REQUEST:

ANSWER:

Answered By: _____
Printed Name

_____ _____
Signature Date

This is not an authorization to proceed with any work involving additional cost and / or time.
Notification must be given in accordance with Contract Documents if any clarification, variation or Architects/Engineers responses cause any change to the Contract Documents.

ANCHORAGE SCHOOL DISTRICT USE ONLY:
Reviewed By:

Is this Request for Information associated with an Request for Proposal?
Yes ____ No _____

Signed: _____ **Date:** _____ **Request for Proposal #**
Project Manager

PCO #XXX

Capital Planning & Construction
1301 Labar St
Anchorage, Alaska 99515
Phone: (907) 348-5284
Fax: (907) 348-5227

Project:

Prime Contract Potential Change Order #XXX: Name

TO:	**FROM:**
PCO NUMBER/REVISION:	**CONTRACT:**
REQUEST RECEIVED FROM:	**CREATED BY:**
STATUS:	**CREATED DATE:**
REFERENCE:	**PRIME CONTRACT CHANGE ORDER:**
FIELD CHANGE:	**CHANGE ORDER REQUEST:**
LOCATION:	**ACCOUNTING METHOD:**
SCHEDULE IMPACT:	**PAID IN FULL:**
CHANGE REASON:	**TOTAL AMOUNT:**

Within seven (7) days, submit an itemized proposal.

Provide labor, material, equipment, and supervision necessary to complete changes to project as represented by the documentation indicated below. The quoted price shall include all direct and indirect costs (additive and deductive) associated with and resulting from this work, per the General Conditions of the Contract. Provide lump sum proposal properly itemized and supported by sustaining data to permit evaluation. The quoted price shall be considered full compensation and include all delay, impact, and actual cost associated with the resulting changes from this extra work.

POTENTIAL CHANGE ORDER DESCRIPTION: *(The Contract Is Changed As Follows)*

ATTACHMENTS:

APPROVAL

By: _____ Project Manager _____ Date

By: _____ Contractor _____ Date

By: _____ Construction Supervisor

Date: _____ Required if amount exceeds $10,000

By: _____ Senior Director of CP&C

Date: _____ Required if amount exceeds $50,000

Capital Planning & Construction page 1 of 1

CERTIFICATE OF COMPLIANCE

No final payment shall be made until the Contractor shall file with the Owner, prior to acceptance of the work, a notarized Certification of Compliance in the following form:

The Contractor does hereby certify that all work has been performed and materials supplied in accordance with the Drawings, Specifications and Contract Documents for the above work, and that:

No less than the prevailing rates of wages as ascertained by the governing body of the Contracting Agency has been paid to laborers, workmen and mechanics employed on this work;

There have been no unauthorized substitutions of Subcontractors; nor have any subcontracts been entered into without prior notice having been submitted to the Owner prior to the start of such subcontracted work;

No subcontract was assigned or transferred or performed by any Subcontractor other than the original Subcontractor, without prior notice having been submitted to the Owner together with the names of all Subcontractors;

All claims for material and labor and other paid service performed in connection with these specifications have been paid;

All monies due the State Industrial Accident Fund, the State Unemployment Compensation Trust Fund, the State Tax Commission, Hospital Associations and/or others have been paid.

In WITNESS WHEREOF, the undersigned has signed and sealed this instrument this

_____ day of _____, 20__.

_____
(Firm Name)

_____
(Signature)

_____
(Title)

(Attest)

(SEAL IF BIDDER IS A CORPORATION)

As determined necessary, evidence of compliance may be required to be submitted with and made a part of this Certificate of Compliance.

WARRANTY OF WORK

Prior to Final Payment, the Contractor shall furnish to the Owner a Warranty of Work in the following form:

The Contractor does hereby warrant all work and materials to be in full and complete accordance with the Contract Documents and Agreement between Owner and Contractor, and requirements appertaining thereto; that all work and materials are free from any and all defects and imperfections, and fully suitable for the use and purposes for which each and every part is intended. The Contractor also agrees that, should any defect develop or appear which the Project Manager or Owner's Representative finds was Not caused by improper use, the Contractor shall promptly, upon demand, fully correct, substitute and make good any such defective material without any cost to the Owner and will save the Owner harmless against any claim, demand, loss or damage by reason of any breach of this warranty.

The period of this warranty shall commence on the date of Substantial Completion.

The warranty shall continue to be in full force and effect for the period of one (1) year, except for those items for which a longer period of warranty is specifically stated in the Warranties for work in Technical Sections of the Specifications.

Warranties for work stated in Technical Section shall continue in full force and effect for the respective periods expressly stated.

In WITNESS WHERE, the undersigned has signed and sealed this instrument this

_____ day of _____, 20__.

_____
(Firm Name)

_____
(Signature)

_____
(Title)

(Attest)

(SEAL IF BIDDER IS A CORPORATION)

AHERA Exclusion Document

Contractor's Verification of Asbestos-Free Construction

Project: _____ **Project Number:** _____

Contractor: _____ **Date:** _____

To: Anchorage School District
Facilities Coordinator,
AHERA LEA Designated Person

To the best of our knowledge, no asbestos-containing building materials were installed in this project.

Attest: _____
Signature of Authorized Representative

_____
Title

PCCO #XXX

Capital Planning & Construction
1301 Labar St
Anchorage, Alaska 99515
Phone: (907) 348-5264
Fax: (907) 348-5227

Project:

Prime Contract Change Order #XXX:

TO:	**FROM:**
DATE CREATED:	**CREATED BY:**
CONTRACT STATUS:	**REVISION:**
DESIGNATED REVIEWER:	**REVIEWED BY:**
DUE DATE:	**REVIEW DATE:**
CONTRACTUAL COMPLETION DATE:	
SCHEDULE IMPACT:	**EXECUTED:**
CONTRACT FOR:	**TOTAL AMOUNT:**
DESCRIPTION:	
ATTACHMENTS:	

CHANGE ORDER REQUESTS IN THIS CHANGE ORDER:

COR #	Issue	Description	Cost
		TOTAL:	$ 0.00

CHANGE ORDER LINE ITEMS: reason

Original contract sum	$
Previously authorized change orders	$
Previous contract amount	$
Current change order amount	$
New contract sum	$
Percent of original contract sum	

Contractor **DATE**

Senior Director of Purchasing/Warehouse **DATE**

Capital Planning & Construction page 1 of 1

CONTRACTOR'S QUALITY CONTROL REPORT (CQC)	DATE	REPORT NO.
CONTRACT NO. AND NAME OF CONTRACTOR	DESCRIPTION AND LOCATION OF THE WORK:	

WEATHER CLASSIFICATION:		CLASSIFICATION:
CLASS A	No interruption of any kind from weather conditions occurring on this or previous shifts.	CLASS _____
CLASS B	Weather occurred during this shift that caused a complete stoppage of all work.	TEMPERATURE: MAX_____MIN_____
CLASS C	Weather occurred during this shift that caused a partial stoppage of work.	
CLASS D	Weather overhead excellent or suitable during shift. Work completely stopped due to results of previous adverse weather.	PRECIPITATION:
CLASS E	Weather overhead excellent or suitable during shift but work partially stopped due to previous adverse manner.	INCHES_____
OTHER	Explain.	

CONTRACTOR/SUBCONTRACTORS AND AREA OF RESPONSIBILITY FOR WORK PERFORMED TODAY: (Attach list of items of equipment either idle or working as appropriate.)

a._____

b._____

c._____

d._____

e._____

f._____

g._____

h._____

1. WORK PERFORMED TODAY: (Indicate location and description of work performed. Refer to work performed by prime and/or subcontractors by letter in Table above.)

2. TYPE AND RESULTS OF INSPECTION: (Indicate whether P-Preparatory, I-Initial, or F-Follow-up and include satisfactory work completed or deficiencies with action to be taken.)

3. TESTS REQUIRED BY PLANS AND/OR SPECIFICATIONS PERFORMED AND RESULTS OF TESTS:
4. QUALITY CONTROL REPORTS (items requiring special inspections):
5. VERBAL INSTRUCTIONS RECEIVED: (List any instructions given by Owner on construction deficiencies, retesting required, etc., with action to be taken.)
6. REMARKS: (Cover any conflicts in plans, specification or instructions: acceptability of incoming materials; offsite surveillance activities; progress of work, delays, causes and extent thereof; days of no work with reasons for same.)
CONTRACTOR'S CERTIFICATION: I certify that the above report is complete and correct and that all material and equipment used, work performed and tests conducted during this reporting period were in strict compliance with the contract plans and specifications except as noted above. _____ CONTRACTOR'S APPROVED AUTHORIZED REPRESENTATIVE

Department of Labor and Workforce Development
Labor Standards and Safety Division
Wage and Hour Administration
www.labor.state.ak.us/lss/lss.htm

NOTICE OF WORK

Filing Fee Required

- This form must be typed or printed in ink.
- Fill in all blanks or form will be returned for correction (see back).
- Please allow a minimum of 10 working days for processing.

ENTER YOUR FAX # _____
AND LIST YOUR MAILING ADDRESS BELOW

Contractor, company or agency name, address, city, state & ZIP + 4

Project name
Specific site description
Contract awarding agency
Address
City State ZIP + 4
Contract awarding agency contact person Phone #
Location and city where work is to be performed
Date work to begin (m/d/y) / Do you intend to use subcontractors? ☐ Yes ☐ No
Final Bid Date / Contract #

Primary contractor (has contract with the public agency)		
List all contractors & subcontractors (Attach extra sheet if necessary)	Type of work	Amount of subcontract

CERTIFICATION: I hereby certify that the above information is correct. Enclosed is the filing fee computed at 1% of the total amount of all my subcontractors on this project. This amount includes the contract value for the primary contractor. I understand that the maximum fee I am required to pay is $5,000. I further certify that all contractors shall be made aware of the requirements of AS 36.05.010 - .110 and AS 36.10.007 - .990 before working.

Total value of subcontracts	$
+ Value of work performed by primary contractor	$
Amount subject to fee	$
	Multiply by .01
Total fee enclosed = **ROUND FEES TO NEAREST DOLLAR**	$

Signature Date

Title

Fax # Phone #

For Dept. Use Only

Accepted:

By_____
Department of Labor and Workforce Development

For Dept. Use Only

Amount: _____ Check Number: _____ Cash ___
Received By: _____ Date: _____
Credit Card Confirmation_____
Visa ___ MC___
Project Name_____
DOLWD Project # _____

Wage & Hour date-stamped copy of this form will serve as temporary receipt.

How to expedite the processing of your form:

Acceptance of this notice will be based on the information provided by the primary contractor.

ERRORS THAT CAUSE REJECTION

No fee included or incorrect amount. If total contract amount is less than $25,000 no filing fee is required. Contract amounts paid to owner/operators with no employees are exempt from the fee. **The maximum total filing fee for any one project is $5,000.00.**

Missing – Enter the "time and materials" if applicable. The exact dollar amount will be required on the Notice of Completion to be filed when the project is done.

Missing – The name of each subcontractor and the amount or estimated amount of the subcontract is required. Enter the "time and materials" if applicable. The exact dollar amount will be required on the Notice of Completion to be filed when the project is done.

Missing – Notice of Work must be signed by an authorized representative.

FILING INSTRUCTIONS

If there is not enough space to list all contractor/subcontractor information, attach additional sheets.

A Wage and Hour Administration (WH) date-stamped copy of this form will serve as a temporary receipt, while the acceptance of fees is processed. WH will mail or fax the accepted copy of this notice to the organization provided on the front of this form. Make a copy for your records. This will serve as your notice that the fees paid have been accepted by WH.

For questions call the nearest WH office:
Juneau: (907) 465-4842 Anchorage: (907) 269-4900 Fairbanks: (907) 451-2886

For more forms, see www.labor.state.ak.us/lss/lssforms.htm

Submit the notice and the appropriate filing fee to:

Alaska Department of Labor and Workforce Development
Wage and Hour Administration
P.O. Box 107021
Anchorage, AK 99510-0721

If no fee is required, you may fax the notice to (907) 269-4915

Alaska Department of Revenue
TAX CLEARANCE REQUEST FORM

Applicant's Name: _____

EIN&SSN: _____

Mailing Address: _____

City/State/Zip Code: _____

I hereby authorize the Alaska Department of Revenue to release to

_____
(Name of Department or Agency)

Departments Statute on tax clearance: _____

whose facsimile number or email address is _____

confirmation that all taxes, penalties and interest due the Department of Revenue have been paid and that there are no outstanding amounts due.

Signed: _____

Printed Name: _____

Title*: _____

*If tax clearance is being requested on behalf of a corporation/LLC/partnership, must be signed by an officer/member/partner.

Send completed form by email to the Department of Revenue at DOR.tax.accounting@alaska.gov

DEPARTMENT USE ONLY

☐ *The above applicant is current on all taxes, penalties and interest due and is in good standing with the Alaska Department of Revenue.*

☐ *The above applicant is not current on all taxes, penalties and interest due and is not in good standing with the Alaska Department of Revenue.*

Department of Revenue Representative _____ *Date*

TaxClearanceRequestForm (Rev 2/21)

THE STATE of ALASKA
GOVERNOR MICHAEL J. DUNLEAVY

Department of Labor and Workforce Development

Division of Employment and Training Services
Employment Security Tax

P.O. Box 115509
Juneau, AK 99811-5509
Relay Alaska (in state): (800) 770-8973 or 7.1.1
Relay Alaska (out of state): (800) 770-8255
Toll free: (888) 448-2937
Phone: (907) 465-2787
Fax: (907) 465-2374

Tax Clearance Request Form for Contractors

Date of request: _____

Business name of the contractor a Tax Clearance is being requested for: _____

_____

Business address: _____

Business contact phone number: _____

Federal Identification Number: _____

Alaska Employer Account Number: _____

Specific time period a tax clearance is being requested for *(i.e. beginning and ending date of a subcontract agreement)*:

_____

Subcontract project name: _____

_____

Name and address of the person this Tax Clearance is to be returned to: _____

_____

Comments or additional information: _____

_____

For agency use only:

☐ Tax Clearance is granted

☐ Tax Clearance is not granted *(please have employer contact the department)*

☐ No account on file, liability unknown *(please have employer contact the department)*

☐ Employer has stated no employees, Tax Clearance not required.

Agency representative signature: _____ Date: _____

Agency representative title: _____

We are an equal opportunity employer/program. Auxiliary aids and services are available upon request to individuals with disabilities. labor.alaska.gov/estax

Rev. 8/2018

Submittal Control Form

Project No:
Project Title: **Contract No:**

Contractor: **Submittal No.**
Address: _____
_____ ____ **New Submittal**
Contact: _____ ____ **Resubmittal**
Telephone:
Fax: _____

Submittal is as Specified? **Yes** **No**

2. **Revision Number:** _____
3. **Submittal Control No.:**
4. **Description:** _____
_____
_____
5. **Spec. Section/Dwg Ref.:**

Number of Copies:

Remarks:

Review is for general design or arrangement only. Not for quality, dimension or fit.

Review Stamp

_____
Submitted By

_____
Date

Forwarded for Design Review: _____ **Date**

_____
ASD Reviewed / Forwarded By

STATE of ALASKA SEX OFFENDER/CHILD KIDNAPPER REGISTRY
CONTRACTOR CERTIFICATION

Pursuant to Article 1, Subparagraph 1.02, of the Instructions to Bidders, Specification Section 00100, I _____ the undersigned Principal for _____ on Solicitation No. _____, certify:

1. that I, either personally or through a person designated by me, have researched the State of Alaska Sex Offender/Child Kidnapper Registry to confirm that no employee or agent who may enter Anchorage School District property in connection with the contract is listed in the Registry.

2. that I have required all subcontractors and any of their sub-subcontractors to certify, or will require all subcontractors and any of their sub-subcontractors to certify, that they researched the State of Alaska Sex Offender/Child Kidnapper Registry to confirm that no employee or agent who may enter district property in connection with the contract is listed in the Registry. I will provide all such certifications to the district on request.

3. To my knowledge, no employee or agent of bidder, or any sub-contractor or sub-sub-contractor of bidder, who may enter district property in connection with the contract is: (a) listed in the sex offender/child kidnapper registry of any other state; or, (b) is a convicted sex offender or child kidnapper.

4. I have read district Board Policy 3515.5 and certify that the bidder will comply with Board Policy 3515.5. The bidder will not send any employee or agent who is a sex offender or child kidnapper to district property, as that term is defined in Board Policy 3515.5.

By: _____ _____
Signature Printed Name

Title: _____

Dated: _____

Revised April 4, 2018

STATE of ALASKA SEX OFFENDER/CHILD KIDNAPPER REGISTRY
SUBCONTRACTOR CERTIFICATION

Pursuant to Article 1, Subparagraph 1.02, of the Instructions to Bidders, Specification Section 00100, I _____ the undersigned Principal for _____ on Solicitation No. _____, certify:

1. that I, either personally or through a person designated by me, have researched the State of Alaska Sex Offender/Child Kidnapper Registry to confirm that no employee or agent who may enter Anchorage School District property in connection with the contract is listed in the Registry.

2. that I have required all subcontractors and any of their sub-subcontractors to certify, or will require all subcontractors and any of their sub-subcontractors to certify, that they researched the State of Alaska Sex Offender/Child Kidnapper Registry to confirm that no employee or agent who may enter district property in connection with the contract is listed in the Registry. I will provide all such certifications to the district on request.

3. that if my company enters into an agreement to perform work as a Subcontractor for _____ the General Contractor for the district under Solicitation No. _____, my company will not allow any worker whose name appears on the State of Alaska Sex Offender/Child Kidnapper Registry to perform work on or at the Project site.

By: _____ _____
Signature Printed Name

Title: _____

Dated: _____

Revised April 21, 2015

STATE of ALASKA SEX OFFENDER/CHILD KIDNAPPER REGISTRY
SUB-SUBCONTRACTOR CERTIFICATION

Pursuant to Article 1, Subparagraph 1.02, of the Instructions to Bidders, Specification Section 00100, I _____ the undersigned Principal for _____ on Solicitation No. _____, certify:

1. that I, either personally or through a person designated by me, have researched the State of Alaska Sex Offender/Child Kidnapper Registry to confirm that no employee or agent who may enter Anchorage School District property in connection with the contract is listed in the Registry.

2. that if my company enters into an agreement to perform work as a Sub-subcontractor for _____ a Subcontractor for the General Contractor for the district under Solicitation No. _____, my company will not allow any worker whose name appears on the State of Alaska Sex Offender/Child Kidnapper Registry to perform work on or at the Project site.

By: _____ _____
Signature Printed Name

Title: _____

Dated: _____

Revised April 21, 2015

ANCHORAGE SCHOOL DISTRICT'S
LIST OF
ALASKAN FEDERALLY REGISTERED APPRENTICESHIP PROGRAMS

Program Number	Program Name	Program Status	Address	Occupation Title
AK00090003	***ABC of Alaska, Inc.***	***Registered***	***301 Arctic Slope Avenue, Suite 100 ANCHORAGE AK 99518***	***CARPENTER***
AK00029002	ALASKA ACOUSTICAL	Registered	903 Warren Street KETCHIKAN AK 99901	CARPENTER
AK00055002	***Alaska Carpenters Training Trust***	***Registered***	***8751 King Street Anchorage AK 99515***	***CARPENTER***
AK00108188	Collins Construction, Incorporated	Suspended	1151 W. Nugget Avenue Wasilla AK 99654	CARPENTER
AK00012589	Finished Works, LLC	Registered	P.O. Box 521791 Big Lake AK 99652	CARPENTER
AK00017801	H Construction, LLC	Registered	15581 Teeling Circle Palmer AK 99645	CARPENTER
AK00107001	ICE SERVICES, INCORPORATED	Registered	2606 C STREET, SUITE 2B ANCHORAGE AK 99503	CARPENTER
AK00008112	Woodwright Construction, Inc.	Registered	P.O. Box 6235 Ketchikan AK 99901	CARPENTER
AK00003900	YUKON-KUSKOKWIM DELTA APPRENTICESHIP PROGRAM	Registered	P.O. BOX 869 BETHEL AK 99559	CARPENTER
AK00055001	***Alaska Carpenters Training Trust***	***Registered***	***8751 King Street Anchorage AK 99515***	***CARPENTER, INTERIOR SYSTEMS (Alternate Title: Interior Systems Carpenter)***
AK00055004	***Alaska Carpenters Training Trust***	***Registered***	***8751 King Street Anchorage AK 99515***	***CARPENTER, PILEDRIVER***
AK00078017	***Alaska Trowel Trades JATC***	***Registered***	***825 East 8th Avenue, Suite 10 Anchorage AK 99501***	***CEMENT MASON***
2019-AK-73685	Rady Concrete Construction, LLC	Registered	P.O. Box 82061 Fairbanks AK 99708	CEMENT MASON
AK00090003	***ABC of Alaska, Inc.***	***Registered***	***301 Arctic Slope Avenue, Suite 100 ANCHORAGE AK 99518***	***CONSTRUCTION CRAFT LABORER***
AK00194006	***Alaska Laborers JATC***	***Registered***	***17805 OLD GLENN HWY CHUGIAK AK 99567***	***CONSTRUCTION CRAFT LABORER***
2017-AK-497	Rock-n-Road Construction, Inc.	Registered	P.O. Box 1188 Petersburg AK 99833	CONSTRUCTION CRAFT LABORER
AK00147691	Wolverine Supply, Inc.	Registered	5099 E. Blue Lupine Drive Wasilla AK 99654	CONSTRUCTION CRAFT LABORER
AK00135904	Yukon River Towing, LLC	Registered	P.O. Box 128 Emmonak AK 99581	CONSTRUCTION CRAFT LABORER
AK00090007	***ALASKA TEAMSTER-EMPLOYER SERVICE TRAINING TRUST***	***Registered***	***520 East 34th Avenue, Suite 201 ANCHORAGE AK 99503***	***CONSTRUCTION DRIVER***
2017-AK-497	Rock-n-Road Construction, Inc.	Registered	P.O. Box 1188 Petersburg AK 99833	CONSTRUCTION DRIVER
2017-AK-550	After Hours Truck & Fleet	Registered	988 Deere Street Fairbanks AK 99709	DIESEL MECHANIC
AK00010351	Holland America Princess Alaska - Yukon	Registered	459 Ocean Dock Road Anchorage AK 99501	DIESEL MECHANIC
2017-AK-69477	Peak Oilfield Service Company - Bristol Bay Industrial	Registered	5015 Business Park Blvd., Suite 4000 Anchorage AK 99503	DIESEL MECHANIC
AK00102656	RL Trucking, LLC.	Registered	1221 East 71st Avenue Anchorage AK 99518	DIESEL MECHANIC
2017-AK-469	907 Electric	Registered	1134 June Agnes Circle Eagle River AK 99577	ELECTRICIAN
AK00090003	***ABC of Alaska, Inc.***	***Registered***	***301 Arctic Slope Avenue, Suite 100 ANCHORAGE AK 99518***	***ELECTRICIAN***
AK00098586	AC Electric, LLC	Registered	P.O. Box 1761 Seward AK 99664	ELECTRICIAN
AK00114734	Access Electric & General Trades, LLC	Registered	P.O. Box 670896 Chugiak AK 99567	ELECTRICIAN
AK00116701	Agape Electric	Registered	P.O. Box 7601 Nikiski AK 99635	ELECTRICIAN
AK00078015	***ALASKA JOINT ELECTRICAL APPRENTICESHIP & TRAINING TRUST***	***Registered***	***5800 B ST ANCHORAGE AK 99518***	***ELECTRICIAN***
AK00013542	Alaska Native Tribal Health Consortium, Division of Environmental Health & Engineerir	Registered	4500 Diplomacy Drive, Suite 454 Anchorage AK 99508	ELECTRICIAN
AK00110276	Alaska's Wiremen	Registered	39535 Fox Trail Road Soldotna AK 99669	ELECTRICIAN
AK00014592	Ala-Wa, Inc.	Registered	P.O. Box 385 Unalaska AK 99685	ELECTRICIAN
AK00012534	Alpine Electric	Registered	13901 East Mayon Ruelle Court Palmer AK 99645	ELECTRICIAN
AK00008023	Amped Electric, Inc.	Registered	3400 International Street Fairbanks AK 99701	ELECTRICIAN
AK00104003	ANCHOR ELECTRIC	Registered	5362 COMMERCIAL DRIVE JUNEAU AK 99801	ELECTRICIAN
AK00015769	Anderson Brothers Electric, LLC	Registered	16300 Ocean View Drive Juneau AK 99801	ELECTRICIAN
2019-AK-73630	Arctic Fox Electric, LLC	Registered	3251 Eastwind Court Anchorage AK 99516	ELECTRICIAN
AK00106001	AUKE BAY ELECTRIC	Registered	P.O. BOX 210194 AUKE BAY AK 99821	ELECTRICIAN
AK00104002	BEAR ELECTRIC, INCORPORATED	Registered	2008 Perkins Drive FAIRBANKS AK 99709	ELECTRICIAN
2018-AK-71428	Bering Straits Development Company	Registered	P.O. Box 1008 Nome AK 99762	ELECTRICIAN
AK00014591	Bootleg Electric, LLC	Registered	P.O. Box 871301 Wasilla AK 99687	ELECTRICIAN
AK00010401	Bridwell, Incorporated	Registered	11425 Avion Street ANCHORAGE AK 99516	ELECTRICIAN
AK00008023	Buness Electric, LLC	Registered	P.O. Box 66 Wrangell AK 99929	ELECTRICIAN
AK00113572	Cache Maintenance	Registered	1295 Aloha Street North Pole AK 99705	ELECTRICIAN
AK00114573	Capstone Electric, LLC	Registered	22356 Whispering Birch Drive Chugiak AK 99567	ELECTRICIAN
AK00105000	CHANNEL ELECTRIC, INC.	Registered	1155 COPPER RIDGE LANE KETCHIKAN AK 99901	ELECTRICIAN
AK00006000	CITY & BOROUGH OF SITKA, ENVIRONMENTAL DEPT.	Registered	100 LINCOLN STREET SITKA AK 99835	ELECTRICIAN
AK00015801	CNS, Inc.	Registered	1285 Overhill Drive Fairbanks AK 99709	ELECTRICIAN
AK00010266	DRS Electric, LLC	Registered	18207 Stillwater Drive Eagle River AK 99577	ELECTRICIAN
AK00017921	Eberline Building and Supply	Registered	3577S Walker Street North Soldotna AK 99669	ELECTRICIAN
AK00010801	Encore Electric, LLC	Registered	5640 B Street Anchorage AK 99518	ELECTRICIAN
AK00014788	Evans Electric	Registered	P.O. Box 1343 Kotzebue AK 99752	ELECTRICIAN
AK00010351	Facility Contractors, LLC	Registered	P.O. Box 2034 Cordova AK 99574	ELECTRICIAN
AK00015801	Frontier Electrical Services, LLC	Registered	P.O. Box 3030 Valdez AK 99686	ELECTRICIAN
AK00110339	Fuchs Electric, Incorporated	Registered	9400 Vanguard Drive, Suite A Anchorage AK 99507	ELECTRICIAN
AK00015800	G2 Construction, Inc.	Registered	P.O. Box 10690 Fairbanks AK 99701	ELECTRICIAN
AK00011470	Glacier Electric	Registered	P.O. Box 112002 Anchorage AK 99511	ELECTRICIAN
AK00115706	GRS Controls	Registered	P.O. Box 56469 North Pole AK 99705	ELECTRICIAN
2017-AK-748	Hanson Construction, Incorporated	Registered	38050 Nenana Avenue Sterling AK 99672	ELECTRICIAN
AK00009195	Hedia Greens Creek Mining Company	Registered	P.O. Box 32199 Juneau AK 99801	ELECTRICIAN
2017-AK-68590	Hometown Connection, Inc.	Registered	P.O. Box 439 Skagway AK 99840	ELECTRICIAN
2019-AK-73036	Huffer Electric, Inc.	Registered	P.O. Box 2229 Soldotna AK 99669	ELECTRICIAN
AK00107001	ICE SERVICES, INCORPORATED	Registered	2606 C STREET, SUITE 2B ANCHORAGE AK 99503	ELECTRICIAN
AK00109169	Icicle Seafoods, Incorporated	Registered	411 N. Nordic Drive Petersburg AK 99833	ELECTRICIAN
AK00006000	INLET ELECTRICAL CONTRACTORS, LLC	Registered	P.O. BOX 202109 ANCHORAGE AK 99520	ELECTRICIAN
AK00015801	Integrated Communication Designs, Inc.	Registered	P.O. Box 111551 Anchorage AK 99511	ELECTRICIAN
AK00012589	Integrity Electric, Inc.	Registered	35955 Ryan Lane Soldotna AK 99669	ELECTRICIAN

ANCHORAGE SCHOOL DISTRICT'S
LIST OF
ALASKAN FEDERALLY REGISTERED APPRENTICESHIP PROGRAMS

Program Number	Program Name	Program Status	Address	Occupation Title
AK00103402	Intelligent Design, LLC	Registered	11741 Timberlane Drive Anchorage AK 99515	ELECTRICIAN
AK00107002	JH ELECTRIC, INCORPORATED	Registered	P.O. BOX 3123 SOLDOTNA AK 99669	ELECTRICIAN
AK00106015	Kaktovik Holdings	Registered	2000 E. 88TH AVENUE ANCHORAGE AK 99507	ELECTRICIAN
AK00135729	KO Electric, LLC	Registered	P.O. Box 3556 Homer AK 99603	ELECTRICIAN
AK00125337	Laker Electric, Incorporated	Registered	11901 Industry Way Anchorage AK 99511	ELECTRICIAN
AK00157998	Livewire Electric, LLC	Registered	1534 Toyon Way A Kenai AK 99611	ELECTRICIAN
AK00135718	Maddox Electric	Registered	P.O. Box 2226 Seward AK 99664	ELECTRICIAN
2018-AK-70830	Mainline Electric	Suspended	P.O. Box 212602 Anchorage AK 99521	ELECTRICIAN
2019-AK-73263	Marathon Electric, LLC	Registered	P.O. Box 927 Seward AK 99664	ELECTRICIAN
AK00147461	Mark IV Enterprises	Registered	951 E. Creekside Drive, #9 Wasilla AK 99654	ELECTRICIAN
AK00070010	MAT-SU MECHANICAL, INC.	Registered	1265 EAST LOLLY CIRCLE WASILLA AK 99654	ELECTRICIAN
2019-AK-73045	Mattingly Electric, LLC	Registered	P.O. Box 788 Petersburg AK 99833	ELECTRICIAN
AK00090007	MIDNIGHT SUN ELECTRIC	Registered	267 West Rodwell Avenue SOLDOTNA AK 99669	ELECTRICIAN
AK00106018	MIRANDA ELECTRIC, INCORPORATED	Registered	P.O. Box 56031 North Pole AK 99705	ELECTRICIAN
AK00146924	Morse Construction	Registered	7362 West Parks Highway, #189 Wasilla AK 99623	ELECTRICIAN
2017-AK-69670	***New Hope Apprenticeship Training***	***Registered***	***2471 West Tropline Drive Wasilla AK 99654***	***ELECTRICIAN***
AK00125637	Nordic Electric, LLC	Registered	806 S. Nordic Drive Petersburg AK 99833	ELECTRICIAN
AK00106016	North Wire, LLC	Registered	1120 E. Huffman Road, Suite 24, Box 695 Anchorage AK 99515	ELECTRICIAN
2017-AK-69477	PITCHER ELECTRIC, INC.	Registered	5015 Business Park Blvd., Suite 4000 Anchorage AK 99508	ELECTRICIAN
AK00060013	PITCHER ELECTRIC, INC.	Registered	P.O. BOX 877871 WASILLA AK 99687	ELECTRICIAN
AK00125710	Power & Light, Incorporated	Registered	7721 Schoon Street, Suite 1 Anchorage AK 99518	ELECTRICIAN
AK00125704	Premier Electric	Registered	P.O. Box 874362 Wasilla AK 99687	ELECTRICIAN
AK00113407	Prism Design & Construction	Registered	P.O. Box 870162 Wasilla AK 99654	ELECTRICIAN
AK00113539	Puffin Electric, Inc.	Registered	3808 Ben Walters Lane Homer AK 99603	ELECTRICIAN
AK00080232	Ray Electric, Inc.	Registered	P.O. Box 55007 North Pole AK 99705	ELECTRICIAN
2018-AK-70771	Renewable Energy Systems	Registered	1698 Airport Way Fairbanks AK 99701	ELECTRICIAN
AK00104007	RISING SON ELECTRIC SERVICES, LLC	Registered	36794 Eklutna Lake Road Chugiak AK 99567	ELECTRICIAN
AK00113405	Safe-T-Way Electric, Incorporated	Registered	6208 Mackay Street Anchorage AK 99518	ELECTRICIAN
2019-AK-72765	Salmon River Electric	Registered	P.O. Box 118 Gustavus AK 99826	ELECTRICIAN
AK00050009	SITKA ELECTRIC COMPANY	Registered	1314 SAWMILL CREEK ROAD SITKA AK 99835	ELECTRICIAN
AK00110397	Sourdough Specialty Contractors	Registered	145 Shady Lane, #4 Soldotna AK 99669	ELECTRICIAN
AK00157697	Spectrum Services	Registered	35867 Driftnetter Street Kenai AK 99611	ELECTRICIAN
2017-AK-69038	Stevens Electric	Registered	9630 Muskeltball Circle Anchorage AK 99507	ELECTRICIAN
2018-AK-70651	Steve's Electrical	Registered	2741 Eniners Cutoff Road Juneau AK 99801	ELECTRICIAN
AK00107008	SU MINER ELECTRICAL ENTERPRISE, LLC	Registered	6801 Hollywood Road Wasilla AK 99654	ELECTRICIAN
AK00108009	TDX Power Services, LLC	Registered	815 East 82nd Avenue, Suite 200 Anchorage AK 99518	ELECTRICIAN
AK00103001	TEC PRO, LTD.	Registered	816 Whitney Road ANCHORAGE AK 99501	ELECTRICIAN
AK00080228	Tesla Electric, LLC.	Registered	1760 Abbott Road Anchorage AK 99507	ELECTRICIAN
AK00108508	The Electrician, LLC	Registered	607 Old Steese Highway, Suite B, PMB 402 Fairbanks AK 99701	ELECTRICIAN
AK00145917	Thomas and Sons Electric	Registered	P.O. Box 955 Craig AK 99921	ELECTRICIAN
AK00113408	Trident Seafoods Corporation	Registered	P.O. Box 220427 Anchorage AK 99522	ELECTRICIAN
AK00147688	Trinity Electric, LLC	Registered	801 E. 82nd Avenue, B-14 Anchorage AK 99518	ELECTRICIAN
AK00107706	TS Construction, Incorporated	Registered	3230 Cool Cay Drive Fairbanks AK 99701	ELECTRICIAN
AK00092469	Vannoy Electric	Registered	5007 W. Reliance Rd. Wasilla AK 99623	ELECTRICIAN
AK00050017	WESTERN POWER ENGINEERING	Registered	P.O. BOX 920657 DUTCH HARBOR AK 99692	ELECTRICIAN
AK00106009	WESTWARD SEAFOODS, INCORPORATED	Registered	P.O. BOX 920608 DUTCH HARBOR AK 99692	ELECTRICIAN
AK00125265	Will Curtis	Registered	1465 Richardson Hwy Valdez AK 99686	ELECTRICIAN
AK00105002	WOODWORTH ELECTRIC	Registered	1200 Queets Circle HOMER AK 99603	ELECTRICIAN
AK00030009	YUKON-KUSKOKWIM DELTA APPRENTICESHIP PROGRAM	Registered	P.O. BOX 869 BETHEL AK 99559	ELECTRICIAN
AK00108192	Zona Electric	Registered	329 Driveway Street, Suite Z Fairbanks AK 99701	ELECTRICIAN
AK00099003	***ABC of Alaska, Inc.***	***Registered***	***301 Arctic Slope Avenue, Suite 100 ANCHORAGE AK 99518***	***ELECTRONIC SYSTEMS TECHNICIAN***
AK00103001	TEC PRO, LTD.	Registered	816 Whitney Road ANCHORAGE AK 99501	ELECTRONIC SYSTEMS TECHNICIAN
AK00033004	***INTERNATIONAL UNION OF ELEVATOR CONSTRUCTORS LOCAL 19 JAC***	***Registered***	***2264 15th Avenue West SEATTLE WA 98119***	***ELEVATOR CONSTRUCTOR MECHANIC***
AK00103005	GRAND PROSPECT CORPORATION	Suspended	P.O. BOX 520858 BIG LAKE AK 99652	FLOOR LAYER
AK00045001	***International Union of Painters and Allied Trades Local 1959 JATC***	***Registered***	***5821 Arctic Boulevard, Unit B ANCHORAGE AK 99518***	***FLOOR LAYER***
AK00145918	The Great Alaskan Flooring, Inc.	Registered	2017 Mill Bay Road Kodiak AK 99615	FLOOR LAYER
AK00099003	***ABC of Alaska, Inc.***	***Registered***	***301 Arctic Slope Avenue, Suite 100 ANCHORAGE AK 99518***	***GLAZIER***
AK00045001	***International Union of Painters and Allied Trades Local 1959 JATC***	***Registered***	***5821 Arctic Boulevard, Unit B ANCHORAGE AK 99518***	***GLAZIER***
AK00099003	***ABC of Alaska, Inc.***	***Registered***	***301 Arctic Slope Avenue, Suite 100 ANCHORAGE AK 99518***	***HEATING & AIR-CONDITIONER INSTALL/SERVICER***
AK00050001	***ALASKA SC/SE SHEET METAL WORKERS JATC***	***Registered***	***1307 E. 75TH AVENUE, #4 ANCHORAGE AK 99518***	***HEATING & AIR-CONDITIONER INSTALL/SERVICER***
AK00045002	***ANCHORAGE ALASKA AREA PIPE TRADES LOCAL #367 JATC***	***Registered***	***617 WEST POTTER DRIVE ANCHORAGE AK 99518***	***HEATING & AIR-CONDITIONER INSTALL/SERVICER***
AK00073004	***ALASKA OPERATING ENGINEERS/EMPLOYERS TRAINING TRUST***	***Registered***	***P.O. BOX 0989 PALMER AK 99645***	***HEAVY DUTY MECHANIC (Alternate Title: Heavy Construction Equipment Mechanic)***
AK00191001 2	TECK ALASKA, INC.	Registered	3105 LAKESHORE DR., BUILDING A, STE 101 ANCHORAGE AK 99	HEAVY EQUIPMENT MECHANIC
AK00099003	***ABC of Alaska, Inc.***	***Registered***	***301 Arctic Slope Avenue, Suite 100 ANCHORAGE AK 99518***	***INSULATION WORKER***
AK00071001	***AK HEAT & FROST INSULATORS & ALLIED WORKERS JATC***	***Registered***	***P.O. Box 103212 Anchorage AK 99520***	***INSULATION WORKER***
AK00010003	Alaska Industrial Insulation & Fireproofing, Incor	Registered	2505 Barrow Street, ANCHORAGE AK 99503	INSULATION WORKER
AK00053001	***Alaska Carpenters Training Trust***	***Registered***	***8751 King Street Anchorage AK 99515***	***LATHER (Alternate Title: Lathing Specialist)***
AK00099003	***ABC of Alaska, Inc.***	***Registered***	***301 Arctic Slope Avenue, Suite 100 ANCHORAGE AK 99518***	***LINE ERECTOR (POWER-LINE DISTRIBUTION ERECTOR)***

ANCHORAGE SCHOOL DISTRICT'S
LIST OF
ALASKAN FEDERALLY REGISTERED APPRENTICESHIP PROGRAMS

Program Number	Program Name	Program Status	Address	Occupation Title
AK00078001S	***ALASKA JOINT ELECTRICAL APPRENTICESHIP & TRAINING TRUST***	***Registered***	***5800 B ST ANCHORAGE AK 99518***	***LINE MAINTAINER (Alternate Title: Line Worker)***
AK00073004	***ALASKA OPERATING ENGINEERS/EMPLOYERS TRAINING TRUST***	***Registered***	***P.O. BOX 0989 PALMER AK 99645***	***LINE MAINTAINER (Alternate Title: Line Worker)***
AK00108980	Alaska Power & Telephone	Registered	P.O Box 34135 Juneau AK 99803	LINE MAINTAINER (Alternate Title: Line Worker)
AK00040002	Alaska Village Electric Cooperative, Inc.	Registered	4831 Eagle Street Anchorage AK 99503	LINE MAINTAINER (Alternate Title: Line Worker)
AK00087008	CITY & BOROUGH OF SITKA - ELECTRICAL DEPARTMENT	Registered	105 JARVIS STREET SITKA AK 99835	LINE MAINTAINER (Alternate Title: Line Worker)
AK00135905	City of Unalaska	Registered	P.O. Box 610 Unalaska AK 99685	LINE MAINTAINER (Alternate Title: Line Worker)
AK00106005	CITY OF WRANGELL-WRANGELL MUNICIPAL LIGHT & POWER	Registered	1064 Case Avenue WRANGELL AK 99929	LINE MAINTAINER (Alternate Title: Line Worker)
AK00107001O	ICE SERVICES, INCORPORATED	Registered	2606 C STREET, SUITE 2B ANCHORAGE AK 99503	LINE MAINTAINER (Alternate Title: Line Worker)
AK00108097S	North Slope Borough Power & Light	Registered	P.O. Box 350 Barrow AK 99723	LINE MAINTAINER (Alternate Title: Line Worker)
AK00147462	Nushagak Electric & Telephone Cooperative, Inc.	Registered	P.O. Box 350 Dillingham AK 99576	LINE MAINTAINER (Alternate Title: Line Worker)
AK00073004	***ALASKA OPERATING ENGINEERS/EMPLOYERS TRAINING TRUST***	***Registered***	***P.O. BOX 0989 PALMER AK 99645***	***LUBRICATION SERVICER MATERIAL DISPOSAL TECHNICIAN***
AK00078001S	***ALASKA JOINT ELECTRICAL APPRENTICESHIP & TRAINING TRUST***	***Registered***	***5800 B ST ANCHORAGE AK 99518***	***MAINTENANCE MECHANIC, TELEPHONE***
AK00000000G	***ALASKA WORKS PARTNERSHIP, INC.***	***Registered***	***1413 HYDER ST ANCHORAGE AK 99501***	***MAINTENANCE REPAIRER, BUILDING***
AK00012589J	Goose Creek Correctional Center	Registered	P.O. Box 877790 Wasilla AK 99687	MAINTENANCE REPAIRER, BUILDING
AK00012588J	Hiland Mountain Correctional Center	Registered	9101 Hesterberg Road Eagle River AK 99577	MAINTENANCE REPAIRER, BUILDING
AK00190000G	SPRING CREEK CORRECTIONAL CENTER	Registered	P.O. BOX 2109 SEWARD AK 99664	MAINTENANCE REPAIRER, BUILDING
AK00190001O	Wildwood Correctional Center	Registered	BLDG 10, CHUGACH AVENUE KENAI AK 99611	MAINTENANCE REPAIRER, BUILDING
AK00191001Z	TECK ALASKA, INC.	Registered	3305 LAKESHORE DR, BUILDING A, STE 101 ANCHORAGE AK 99	MECHANIC, INDUSTRIAL TRUCK
AK00085001	***Alaska Carpenters Training Trust***	***Registered***	***8751 King Street Anchorage AK 99515***	***MILLWRIGHT***
AK00191001Z	TECK ALASKA, INC.	Registered	3305 LAKESHORE DR, BUILDING A, STE 101 ANCHORAGE AK 99	MILLWRIGHT
AK00099000J	***ABC of Alaska, Inc.***	***Registered***	***301 Arctic Slope Avenue, Suite 100 ANCHORAGE AK 99518***	***OPERATING ENGINEER***
AK00073004	***ALASKA OPERATING ENGINEERS/EMPLOYERS TRAINING TRUST***	***Registered***	***P.O. BOX 0989 PALMER AK 99645***	***OPERATING ENGINEER***
AK00114769J	Wolverine Supply, Inc.	Registered	5099 E. Blue Lupine Drive Wasilla AK 99654	OPERATING ENGINEER
AK00099000J	***ABC of Alaska, Inc.***	***Registered***	***301 Arctic Slope Avenue, Suite 100 ANCHORAGE AK 99518***	***PAINTER (Construction)***
AK00049000I	***International Union of Painters and Allied Trades Local 1959 JATC***	***Registered***	***5821 Arctic Boulevard, Unit B ANCHORAGE AK 99518***	***PAINTER (Construction)***
AK00099000J	***ABC of Alaska, Inc.***	***Registered***	***301 Arctic Slope Avenue, Suite 100 ANCHORAGE AK 99518***	***PIPE FITTER (Construction)***
AK00049000Z	***ANCHORAGE ALASKA AREA PIPE TRADES LOCAL #367 JATC***	***Registered***	***617 WEST POTTER DRIVE ANCHORAGE AK 99518***	***PIPE FITTER (Construction)***
AK00151000Z	***Fairbanks Area Plumbers & Pipefitters JATC***	***Registered***	***1978 BURGESS AVENUE FAIRBANKS AK 99709***	***PIPE FITTER (Construction)***
AK00056000I	***JUNEAU PLUMBERS JATC***	***Registered***	***1751 ANKA STREET JUNEAU AK 99801***	***PIPE FITTER (Construction)***
AK00078001P	***Alaska Trowel Trades JATC***	***Registered***	***825 East 8th Avenue, Suite 10 Anchorage AK 99501***	***PLASTERER***
AK00109277O	907 Heating and Plumbing	Registered	P.O. Box 220032 Anchorage AK 99522	PLUMBER
AK00099000J	***ABC of Alaska, Inc.***	***Registered***	***301 Arctic Slope Avenue, Suite 100 ANCHORAGE AK 99518***	***PLUMBER***
AK00012534G	Ace Heating, Inc.	Registered	2780 N. Heatherray Circle Wasilla AK 99654	PLUMBER
AK00010350T	Al Fish Plumbing, LLC	Registered	11805 Gregory Road Anchorage AK 99516	PLUMBER
AK00012589G	Alaska Clearwater Mechanical, LLC	Registered	P.O. Box 709 Willow AK 99688	PLUMBER
AK00113542J	Alaska Native Tribal Health Consortium, Division of Environmental Health & Engineerir	Registered	4500 Diplomacy Drive, Suite 454 Anchorage AK 99508	PLUMBER
AK00109393J	All American Plumbing & Heating	Registered	9509 Antler Way Juneau AK 99801	PLUMBER
AK00013590S	All-Star Plumbing & Heating, LLC	Registered	11320 Bearpaw Street Anchorage AK 99516	PLUMBER
AK00107000T	ALWAYS ON CALL MOUNTAIN MECHANICAL CORPORATION	Registered	8427 MENTRA STREET ANCHORAGE AK 99518	PLUMBER
AK00015799J	Ameresco, Inc.	Registered	6643 Brayton Drive Anchorage AK 99507	PLUMBER
AK00049000Z	***ANCHORAGE ALASKA AREA PIPE TRADES LOCAL #367 JATC***	***Registered***	***617 WEST POTTER DRIVE ANCHORAGE AK 99518***	***PLUMBER***
AK00070016J	ANCHORAGE PLUMBING & HEATING, INC.	Registered	7640 King Street ANCHORAGE AK 99518	PLUMBER
AK00105001S	APEX PLUMBING & HEATING SERVICES, LLC	Registered	19087 E. Jessica Ann Street Sutton AK 99674	PLUMBER
AK00008111Z	Arctic Chain Plumbing & Heating, Inc.	Registered	1200 East 76th Avenue, Unit 1220 Anchorage AK 99518	PLUMBER
2017-AK-68554	Arctic Plumbing & Heating, LLC	Registered	2125 Richardson Highway, Suite #2 North Pole AK 99705	PLUMBER
2019-AK-72300	Beckley Mechanical Company	Registered	2125 Richardson Highway North Pole AK 99705	PLUMBER
AK00014592Z	Blades Mechanical	Registered	148 Hillcrest Avenue, #2 Soldotna AK 99669	PLUMBER
AK00014592I	Boilerman Plumbing & Heating, Inc.	Registered	6800 Lonesome Drive Palmer AK 99645	PLUMBER
AK00104001J	BOWMAN MECHANICAL CONTRACTORS, INC	Registered	11701 Toy Drive ANCHORAGE AK 99515	PLUMBER
AK00012571Z	Central Mechanical, Incorporated	Registered	311 N. Sitka Street Anchorage AK 99501	PLUMBER
AK00009220T	Circle Plumbing and Heating, Inc.	Registered	2317 Raspberry Road Anchorage AK 99502	PLUMBER
AK00113571T	D.H. Plumbing & Heating, Incorporated	Suspended	7741 King Street Anchorage AK 99518	PLUMBER
AK00216770O	Daleco Plumbing	Registered	64525 PITZMAN AVE Homer AK 99603	PLUMBER
AK00114769O	Dawson Construction, Incorporated	Registered	4220 Cambria Drive west Ketchikan AK 99901	PLUMBER
AK00187000J	DENALI MECHANICAL INC.	Registered	995 RILEY COURT FAIRBANKS AK 99701	PLUMBER
AK00116770Z	Discount Mechanical, LLC	Registered	P.O. Box 233694 Anchorage AK 99523	PLUMBER
AK00108058S	Eayrs Plumbing & Heating, LLC	Registered	1208 Lakeshore Drive Homer AK 99603	PLUMBER
AK00104002J	ENCORE MECHANICAL, INC.	Registered	P.O. BOX 1788 PALMER AK 99645	PLUMBER
AK00113572G	Extreme Heating & Air, Incorporated	Registered	16805 Farm Avenue Eagle River AK 99577	PLUMBER
AK00151000Z	***Fairbanks Area Plumbers & Pipefitters JATC***	***Registered***	***1978 BURGESS AVENUE FAIRBANKS AK 99709***	***PLUMBER***
AK00014592G	Fedor's Plumbing & Heating, LLC	Registered	5902 Condova Street Anchorage AK 99518	PLUMBER
AK00012589Z	Funk Services	Registered	P.O. Box 671188 Chugiak AK 99567	PLUMBER
AK00012524J	Glacier Point Services	Registered	P.O. Box 61237 Fairbanks AK 99706	PLUMBER
AK00013591Z	H and M Plumbing & Heating, Inc.	Registered	P.O. Box 222225 Anchorage AK 99522	PLUMBER
AK00004002T	HARDROCK PLUMBING AND HEATING, LLC	Registered	4740 E. FATTIC DRIVE WASILLA AK 99654	PLUMBER
AK00105000J	HEATCO, LLC	Registered	17141 N. EAGLE RIVER LOOP ROAD EAGLE RIVER AK 99577	PLUMBER
2019-AK-72458	Homer Plumbing and Heating	Registered	581 Mountain View Drive Homer AK 99603	PLUMBER

ANCHORAGE SCHOOL DISTRICT'S
LIST OF
ALASKAN FEDERALLY REGISTERED APPRENTICESHIP PROGRAMS

Program Number	Program Name	Program Status	Address	Occupation Title
AK00158005	Hunter Mechanical International Corporation	Registered	337 East 4th Avenue, Suite 1 Anchorage AK 99501	PLUMBER
AK00170010	ICE SERVICES, INCORPORATED	Registered	2606 C STREET, SUITE 2B ANCHORAGE AK 99503	PLUMBER
AK00168010	Icy Strait Plumbing and Heating	Registered	828a Garnet Street Juneau AK 99801	PLUMBER
AK00108402	Intelligent Design, LLC	Registered	11741 Timberlane Drive Anchorage AK 99515	PLUMBER
2018-AK-72080	IOLA Enterprises dba Runstrom Plumbing & Heating	Registered	HC 89 Box 8182 Talkeetna AK 99676	PLUMBER
AK00108636	JGH Plumbing & Heating, Incorporated	Registered	P.O. Box 3385 Palmer AK 99645	PLUMBER
AK00092650	John White's Plumbing & Heating	Registered	5327 Kenai Spur Highway Kenai AK 99611	PLUMBER
AK00060005	JOURNEYMAN PLUMBING & HEATING, INC.	Registered	51315 SEA QUEST DRIVE KENAI AK 99611	PLUMBER
AK00060001	*JUNEAU PLUMBERS JATC*	*Registered*	*1751 ANKA STREET JUNEAU AK 99801*	*PLUMBER*
2017-AK-69607	Kasilof Plumbing & Heating	Registered	26547 S. Cohoe Loop Kasilof AK 99610	PLUMBER
AK00157698	Kiwi Mechanical	Registered	Box 2132 Cordova AK 99574	PLUMBER
AK00105001	KNIK PLUMBING & HEATING	Registered	4915 W. 84TH AVENUE ANCHORAGE AK 99502	PLUMBER
AK00066017	LARRY'S PLUMBING & HEATING	Registered	P.O. BOX 4148 KODIAK AK 99615	PLUMBER
AK00147687	Larry's Quality Heating & Plumbing, Inc.	Registered	2531 Barrett Avenue Juneau AK 99801	PLUMBER
AK00080234	Lewis Mechanical, Inc.	Registered	13240 View Heights Way Anchorage AK 99516	PLUMBER
AK00050011	M&J PLUMBING & HEATING, INC.	Registered	34360 Business Park Frontage Road SOLDOTNA AK 99669	PLUMBER
AK00070010	MAT-SU MECHANICAL, INC.	Registered	1265 EAST LOLLY CIRCLE WASILLA AK 99654	PLUMBER
2017-AK-68589	Monkey Wrench Mechanical	Registered	P.O. Box 73441 Fairbanks AK 99707	PLUMBER
AK00113541	Moore Heating & Air Conditioning	Registered	1801 East Dowling Road Anchorage AK 99507	PLUMBER
AK00114890	Mr. Rooter Plumbing of Fairbanks	Registered	875 Old Richardson Highway FAIRBANKS AK 99701	PLUMBER
AK00091696	North Country Stoves, Incorporated	Registered	2207 E. Tudor Road, #40 Anchorage AK 99507	PLUMBER
AK00145928	Pacific Rim Mechanical, LLC	Registered	P.O. Box 669 Haines AK 99827	PLUMBER
AK00167004	PARAGON PLUMBING & HEATING, INCORPORATED	Registered	3400 MACARTHUR STREET FAIRBANKS AK 99701	PLUMBER
AK00000005	PARKHURST MECHANICAL	Registered	P. O. BOX 1806 Palmer AK 99645	PLUMBER
AK00105006	PARTUSCH PLUMBING & HEATING	Registered	8301 SCHOON STREET ANCHORAGE AK 99518	PLUMBER
AK00106001O	PLEASANTS PLUMBING & HEATING	Registered	P.O. BOX 3305 JUNEAU AK 99803	PLUMBER
AK00167705	Pollard Construction	Suspended	P. O. Box 32811 Juneau AK 99803	PLUMBER
AK00092200	Portwinde Plumbing and Heating, Inc.	Registered	1500 Alaska Way Fairbanks AK 99709	PLUMBER
AK00103394	Premier Mechanical, LLC	Registered	2011 Millbay Road, #2 Kodiak AK 99615	PLUMBER
AK00167700	Red Hot Mechanical, Incorporated	Registered	11723 Old Glenn Highway, Suite 107 Eagle River AK 99577	PLUMBER
AK00145735	River City Plumbing & Heating	Registered	863 6th Avenue Fairbanks AK 99701	PLUMBER
AK00177707	Rock Solid Plumbing & Heating	Registered	P.O. Box 874416 Wasilla AK 99687	PLUMBER
2017-AK-652	S.E. Plumbing, Incorporated	Registered	86 Garland Court Ketchikan AK 99901	PLUMBER
AK00168008	Scottie's Plumbing	Registered	P.O. Box 72789 Fairbanks AK 99707	PLUMBER
AK00080237	Scott's Heating & Plumbing Services, Inc.	Registered	P.O. Box 3132 Kodiak AK 99615	PLUMBER
AK01040017	STATEWIDE MECHANICAL, LLC	Registered	22750 MCMANUS DRIVE CHUGIAK AK 99567	PLUMBER
AK00088122	Sundance Construction Company, Inc.	Registered	P.O. Box 561 Kasilof AK 99610	PLUMBER
AK00092651	Superior Mechanical, Inc.	Registered	P.O. Box 82409 Fairbanks AK 99708	PLUMBER
2018-AK-71943	Tauman Mechanical Plumbing & Heating, LLC	Registered	730 W. 88th Avenue Anchorage AK 99515	PLUMBER
AK00170021	VALLEY MECHANICAL CONTRACTING, INCORPORATED	Registered	6673 E TEXAL DRIVE WASILLA AK 99654	PLUMBER
AK00125707	Waterworks Plumbing & Heating	Registered	P.O. Box 1974 Soldotna AK 99669	PLUMBER
2019-AK-73100	Wolf Pack Mechanical, LLC	Registered	P.O. Box 521118 Big Lake AK 99652	PLUMBER
AK00030009	YUKON-KUSKOKWIM DELTA APPRENTICESHIP PROGRAM	Registered	P.O. BOX 869 BETHEL AK 99559	RESIDENTIAL CARPENTER
AK00092654	Ketchikan Indian Community	Registered	615 Stedman Street Ketchikan AK 99901	RESIDENTIAL CARPENTER
AK00113537	Nicholas Construction, LLC	Registered	P.O. Box 599 Ward Cove AK 99901	RESIDENTIAL CARPENTER
AK00135904	Yukon River Towing, LLC	Registered	P.O. Box 128 Emmonak AK 99581	RESIDENTIAL CARPENTER
AK00055004	A & K ELECTRIC	Registered	1545 CROSSON AVENUE FAIRBANKS AK 99701	RESIDENTIAL WIREMAN
AK00070015	*ALASKA JOINT ELECTRICAL APPRENTICESHIP & TRAINING TRUST*	*Registered*	*5800 B STANCHORAGE AK 99518*	*RESIDENTIAL WIREMAN*
2017-AK-472	Big M Electric, LLC	Registered	P.O. Box 84044 Fairbanks AK 99708	RESIDENTIAL WIREMAN
AK00145927	Bristol Bay Housing Authority	Registered	P.O. Box 50 Dillingham AK 99576	RESIDENTIAL WIREMAN
AK00108513	Dependable Services	Registered	P.O. Box 4357 Palmer AK 99645	RESIDENTIAL WIREMAN
AK00135907	Elegant Homes	Registered	P.O. Box 875769 Wasilla AK 99687	RESIDENTIAL WIREMAN
AK00109511	Fonov Construction and Electric, LLC	Registered	2155 North Biltmore Court Wasilla AK 99654	RESIDENTIAL WIREMAN
AK00114573 3	Gardner Electric Company, LLC	Registered	4183 Aspen Avenue Juneau AK 99801	RESIDENTIAL WIREMAN
AK00004014	INTERIOR REGIONAL HOUSING AUTHORITY	Registered	828 27TH AVENUE FAIRBANKS AK 99701	RESIDENTIAL WIREMAN
AK00114769 2	Marty Wise Electrical	Registered	1634 Sterling Highway Homer AK 99603	RESIDENTIAL WIREMAN
2017-AK-69670	*New Hope Apprenticeship Training*	*Registered*	*2471 West Tropline Drive Wasilla AK 99654*	*RESIDENTIAL WIREMAN*
AK00106007	Pacific North Construction	Registered	P.O. Box 872963 Wasilla AK 99687	RESIDENTIAL WIREMAN
AK00106001 3	PITCHER ELECTRIC, INC.	Registered	P.O. BOX 877871 WASILLA AK 99687	RESIDENTIAL WIREMAN
AK01040007	RISING SON ELECTRIC SERVICES, LLC	Registered	36784 Eklutna Lake Road Chugiak AK 99567	RESIDENTIAL WIREMAN
AK01103400	Solid Ground Electric	Registered	13811 Savage Drive Eagle River AK 99577	RESIDENTIAL WIREMAN
AK00055001	*Alaska Carpenters Training Trust*	*Registered*	*8751 King Street Anchorage AK 99515*	*SCAFFOLD ERECTOR*
AK00099003	*ABC of Alaska, Inc.*	*Registered*	*301 Arctic Slope Avenue, Suite 100 ANCHORAGE AK 99518*	*SHEET METAL WORKER*
AK00050001	*ALASKA SC/SE SHEET METAL WORKERS JATC*	*Registered*	*1307 E. 75TH AVENUE, #4 ANCHORAGE AK 99518*	*SHEET METAL WORKER*
AK00187004	DENALI MECHANICAL, INC.	Registered	995 RILEY COURT FAIRBANKS AK 99701	SHEET METAL WORKER
AK00130001	*FAIRBANKS AREA SHEET METAL WORKERS JATC*	*Registered*	*1260 AURORA DRIVE FAIRBANKS AK 99709*	*SHEET METAL WORKER*
AK01080587	Valley Mechanical Contractors, Inc.	Registered	6673 E Tex-Al Drive Wasilla AK 99654	SHEET METAL WORKER

ANCHORAGE SCHOOL DISTRICT'S
LIST OF
ALASKAN FEDERALLY REGISTERED APPRENTICESHIP PROGRAMS

Program Number	Program Name	Program Status	Address	Occupation Title
AK0009590003	ABC of Alaska, Inc.	Registered	301 Arctic Slope Avenue, Suite 100 ANCHORAGE AK 99518	SPRINKLER FITTER (Existing Title: Pipe Fitter)
AK0009490002	ANCHORAGE ALASKA AREA PIPE TRADES LOCAL #367 JATC	Registered	617 WEST POTTER DRIVE ANCHORAGE AK 99518	SPRINKLER FITTER (Existing Title: Pipe Fitter)
AK0015110002	Fairbanks Area Plumbers & Pipefitters JATC	Registered	1978 BURGESS AVENUE FAIRBANKS AK 99709	SPRINKLER FITTER (Existing Title: Pipe Fitter)
AK0007810016	ALASKA IRONWORKERS JATC	Registered	8341 SCHOON STREET ANCHORAGE AK 99518	STRUCTURAL STEEL WORKER (Alternate Titles: Ironworker or Structural Ironworker)
AK0000000007	ALASKA TEAMSTER-EMPLOYER SERVICE TRAINING TRUST	Registered	520 East 34th Avenue, Suite 201 ANCHORAGE AK 99503	SURVEYOR ASSISTANT INSTRUMENT
AK0009840001	ALASKA JOINT ELECTRICAL APPRENTICESHIP & TRAINING TRUST	Registered	5800 B STREET ANCHORAGE AK 99518	TREE TRIMMER (Line Clearance)
AK0000000007	ALASKA TEAMSTER-EMPLOYER SERVICE TRAINING TRUST	Registered	520 East 34th Avenue, Suite 201 ANCHORAGE AK 99503	TRUCK DRIVER, HEAVY
2017-NH-68810	River Valley Workforce Institute, Inc.	Registered	325 Mount Support Road Lebanon NH 03766	WELDER, COMBINATION
AK0019100012	TECK ALASKA, INC.	Registered	3105 LAKESHORE DR., BUILDING A, STE 101 ANCHORAGE AK 99	WELDER, COMBINATION

Multiple-employer apprenticeship sponsors.

ANCHORAGE SCHOOL DISTRICT
APPRENTICE UTILIZATION FORM

Project Name: _____

Solicitation Number: _____

Contractor: _____

Prime Contractors

1. Please list crafts/trades that will be used to complete this project and have Alaskan Federally Registered Apprenticeship programs.

_____ _____
_____ _____
_____ _____
_____ _____
_____ _____
_____ _____
_____ _____

2. Please list the apprentices and corresponding apprenticeship programs that will be used by the prime contractor to complete this project. If more space is needed, please attach supplemental sheets.

APPRENTICE'S NAME	APPRENTICESHIP PROGRAM

Page 1 of 2

3. Please list the subcontractors that will be used on the project.

4. Please list the apprentices and corresponding apprenticeship programs that will be used by the subcontractors to complete this project. If more space is needed, please attach supplemental sheets.

APPRENTICE'S NAME	APPRENTICESHIP PROGRAM

ANCHORAGE SCHOOL DISTRICT
APPRENTICESHIP UTILIZATION PROGRAM CALCULATIONS FORM

CONTRACTOR NAME:	CHECK APPROPRIATE BOX	AUDIT PERIOD
CONTRACTOR ADDRESS:	Contractor ☐ Check Box 3 Sub-contractor ☐ Check Box 2	

LIST OF POTENTIAL ELIGIBLE TRADES CATEGORY	NUMBER OF AGGREGATE HOURS WORKED BY ALL WORKERS ON THE PROJECT IN TRADES-CRAFTS CATEGORY	NUMBER OF AGGREGATE APPRENTICE HOURS WORKED BY ALL WORKERS ON THE PROJECT IN TRADES-CRAFTS CATEGORY
CAPENTERS		
CEMENT MASONS		
ELECTRICIANS		
ELEVATOR WORKERS		
INSULATION WORKER		
LABORERS		
MILWRIGHTS		
OPERATING ENGINEERS		
PAINTERS		
PLUMBERS		
SHEET METAL WORKER		
SPRINKLER FITTER		
SURVEYORS		
TRUCK DRIVER		
TOTAL AGGREGATE HOURS		

ELIGIBLE TRADES CATEGORY	ALASKAN FEDERALLY REGISTERED APPRENTICESHIP PROGRAM	APPRENTICE'S NAME	DATE RANGE OF APPRENTICE GOOD STANDING STATUS START DATE	DATE RANGE OF APPRENTICE GOOD STANDING STATUS END DATE	NUMBER OF HOURS WORKED THIS AUDIT PERIOD BY APPRENTICE

PENALTY TABLE

$100,001 TO $500,000

1ST NON-COMPLIANCE (30-DAY)	$	500.00	
2ND CONSECUTIVE NON-COMPLIANCE (30-DAY)	$	750.00	
3RD 30-DAY CONSECUTIVE NON-COMPLIANCE	$	1,000.00	
4TH CONSECUTIVE NON-COMPLIANCE (30-DAY)	$	1,000.00	AND FINDING OF NON-RESPONSIBILITY IN FUTURE BIDDING
FURTHER CONSECUTIVE NON-COMPLIANCE EXCEEDING 4TH NON-COMPLIANCE (30-DAY)	$	1,000.00	AND FINDING OF NON-RESPONSIBILITY IN FUTURE BIDDING

$500,001 TO $1,000,000

1ST NON-COMPLIANCE (30-DAY)	$	750.00	
2ND CONSECUTIVE NON-COMPLIANCE (30-DAY)	$	1,500.00	
3RD CONSECUTIVE NON-COMPLIANCE (30-DAY)	$	2,500.00	
4TH CONSECUTIVE NON-COMPLIANCE (30-DAY)	$	5,000.00	AND FINDING OF NON-RESPONSIBILITY IN FUTURE BIDDING
FURTHER CONSECUTIVE NON-COMPLIANCE EXCEEDING 4TH NON-COMPLIANCE (30-DAY)	$	5,000.00	AND FINDING OF NON-RESPONSIBILITY IN FUTURE BIDDING

$1,000,001 TO $3,000,000

1ST NON-COMPLIANCE (30-DAY)	$	1,000.00	
2ND CONSECUTIVE NON-COMPLIANCE (30-DAY)	$	2,500.00	
3RD CONSECUTIVE NON-COMPLIANCE (30-DAY)	$	5,000.00	
4TH CONSECUTIVE NON-COMPLIANCE (30-DAY)	$	7,500.00	AND FINDING OF NON-RESPONSIBILITY IN FUTURE BIDDING
FURTHER CONSECUTIVE NON-COMPLIANCE EXCEEDING 4TH NON-COMPLIANCE (30-DAY)	$	7,500.00	AND FINDING OF NON-RESPONSIBILITY IN FUTURE BIDDING

$3,000,001 TO $5,000,000

1ST NON-COMPLIANCE (30-DAY)	$	1,500.00	
2ND CONSECUTIVE NON-COMPLIANCE (30-DAY)	$	3,000.00	
3RD CONSECUTIVE NON-COMPLIANCE (30-DAY)	$	7,500.00	
4TH CONSECUTIVE NON-COMPLIANCE (30-DAY)	$	10,000.00	AND FINDING OF NON-RESPONSIBILITY IN FUTURE BIDDING
FURTHER CONSECUTIVE NON-COMPLIANCE EXCEEDING 4TH NON-COMPLIANCE (30-DAY)	$	10,000.00	AND FINDING OF NON-RESPONSIBILITY IN FUTURE BIDDING

OVER $5,000,000

1ST NON-COMPLIANCE (90-DAY)	$	2,500.00	
2ND CONSECUTIVE NON-COMPLIANCE (90-DAY)	$	5,000.00	
3RD CONSECUTIVE NON-COMPLIANCE (90-DAY)	$	8,000.00	
4TH CONSECUTIVE NON-COMPLIANCE (90-DAY)	$	10,000.00	AND FINDING OF NON-RESPONSIBILITY IN FUTURE BIDDING
FURTHER CONSECUTIVE NON-COMPLIANCE EXCEEDING 4TH NON-COMPLIANCE (90-DAY)	$	10,000.00	AND FINDING OF NON-RESPONSIBILITY IN FUTURE BIDDING

END OF SECTION

GENERAL CONDITIONS OF THE CONTRACT FOR CONSTRUCTION

REFERENCE:

The General Conditions shall be GENERAL CONDITIONS OF THE CONTRACT FOR CONSTRUCTION, ANCHORAGE SCHOOL DISTRICT, ANCHORAGE, ALASKA, bound herein.

SUPPLEMENTS:

Supplements may modify, change, delete, or add to these General Conditions. Where any article of the General Conditions is modified or any paragraph deleted, or any subparagraph or clause thereof is modified, or deleted by supplements, the unaltered provisions of such article, paragraph, subparagraph or clause shall remain in effect. The General Conditions and the Supplementary General Conditions are applicable to all of the Work under this Contract and shall apply to the Contractor and all Subcontractors, Sub-subcontractors, and Material Suppliers and Vendors.

TABLE OF ARTICLES

ARTICLE PAGE

1. THE CONTRACT DOCUMENTS 00700-3
2. ARCHITECT 00700-7
3. OWNER 00700-10
4. CONTRACTOR 00700-14
5. SUBCONTRACTORS 00700-25
6. WORK BY OWNER OR BY SEPARATE CONTRACTORS 00700-28
7. MISCELLANEOUS PROVISIONS 00700-30
8. TIME 00700-34
9. PAYMENTS AND COMPLETION 00700-38
10. PROTECTION OF PERSONS AND PROPERTY 00700-46
11. INSURANCE 00700-48
12. CHANGES IN THE WORK 00700-52
13. UNCOVERING AND CORRECTION OF THE WORK 00700-60
14. TERMINATION OF THE CONTRACT 00700-62

ARTICLE 1

CONTRACT DOCUMENTS

1.1 DEFINITIONS

1.1. 1 The following terms as used in this Contract are defined as follows:

"Architect / Engineer or A/E": The design consultant of the Owner.

"Construction Manager": Supervises the construction phase of construction projects for the Anchorage School District Facilities Department.

"Contract": The Agreement between Owner and Contractor and the referenced Contract Documents stated therein.

"Contractor": The person, firm, or corporation contractually responsible to the Owner to provide the services called for by this Contract. Such entity may also be referred to as Managing General Contractor, General Contractor, or Prime Contractor.

"Days": Calendar days unless otherwise noted.

"Direct Cost": A direct cost is any cost that can be identified specifically with a particular final cost objective, i.e., with this contract, or an item of extra work, or change order under the contract.

"Senior Director of Capital Planning & Construction": Manages the Operations of the Anchorage School District Capital Planning & Construction Department.

"Furnish": Supply and deliver to the project including the cost to supply and deliver.

"Indirect Cost": An indirect cost, collectively called overhead, is any cost not directly identified with a single, final cost objective, but identified with two or more final cost objectives or an intermediate cost objective.

"Install": Build into the Work, ready to use in a complete, finished, and operable system, including the cost to install.

"Owner": The Anchorage School District, its Anchorage School Board of Education, the Superintendent of the Anchorage School District, and its employees.

"Project Manager": The person designated by the Senior Director of Capital Planning & Construction as the Owner's representative for this Contract, responsible for the day-to-day coordination between the Owner and the Contractor.

"Provide": Furnish and install for a complete, finished, and operable system.

"Reasonable Cost": A cost is reasonable if, in its nature or amount, it does not exceed that which would be incurred in a competitive market.

"Shop Drawings, Setting Drawings, Manufacturer's Printed Information and Submittal (collectively known as "Submittals")": The Contractor's information consisting of drawings, catalogs, illustrations, calculations, and other data delivered to the Owner for the purpose of assuring the Owner, prior to execution of that part of the Work, that the prescriptive element, component, subsystem, or service to be provided generally conforms with the

Contract. The Contractor is responsible to the Owner for the accuracy and completeness of the Submittals.

"Subcontractor": A person, firm, or entity who has a direct contract with the Contractor to perform any of the work.

"Work" or "Project": The finished product required by the Contract Documents together with the means and methods as determined, by the Contractor, to achieve the finished product.

1.1. 2 THE CONTRACT DOCUMENTS

The Contract Documents consist of the Owner-Contractor Agreement, the Drawings, the Project Manual, and all Addenda issued prior to and all Modifications issued after execution of the Contract. A Modification is (1) a directive for change in the work pursuant to Section 12.1.2 or (2) a change order pursuant to Section 12.2.6.

1.1. 3 THE CONTRACT

The Contract is the sum of all the Contract Documents. This Contract represents the entire and integrated agreement between the Owner and the Contractor and supersedes all prior negotiations, representations, or agreements, either written or oral. The Contract may be amended or modified only by a Modification as defined in Subparagraph 1.1.2.

1.1. 4 THE WORK

The Work comprises the completed construction required by the Contract Documents and includes all labor necessary to produce such construction, and all materials and equipment incorporated or to be incorporated in such construction.

1.1. 5 THE PROJECT

The Project is the total construction, of which the Work performed under the Contract documents may be the whole or a part.

1.1. 6 SCHOOL BOARD

Board of Education of the Anchorage School District, Anchorage, Alaska.

1.1. 7 BIDDER

Any individual, firm, partnership, corporation or combination thereof, formally submitting a bid for the work contemplated, or any portion thereof, acting directly or through an authorized representative.

1.1. 8 MUNICIPALITY

Municipality of Anchorage, Alaska.

1.1. 9 PROPOSAL

1.1.9.1 BID PROPOSAL

The written proposal of the Bidder on the form furnished by the Owner for the Work contemplated, and which is required to be signed by the Bidder.

1.1.9.2 REQUEST FOR PROPOSAL (RFP)

The offer of the Contractor submitted on the prescribed form from the Project Manager to perform the work and furnish labor, material and all other costs at the prices quoted by the Contractor for proposed changes in the work.

1.1. 10 SPECIFICATIONS

The products, directions, requirements, explanations, terms and provisions pertaining to the various features of the Work to be done and the manner and method of performance. The specifications include such directions, requirements and explanations as appear on the drawings and as may otherwise be defined.

1.1. 11 PROJECT SITE

The geographic location of the Project as indicated on the Drawings.

1.1. 12 PROJECT MANUAL

The Project Manual includes the Bidding and Contract Requirements, Project Schedule Milestone Dates, General and Supplementary Conditions, Wage Rates, the Specifications and project drawings incorporated by reference.

1.1. 13 REQUEST FOR INFORMATION

Request for Information. Written interpretations necessary for the proper execution or progress of the Work, in the form of drawings or otherwise, will be issued with reasonable promptness by the Project Manager. The Contractor may make written request to the Project Manager for such interpretations. Such interpretations will be consistent with and reasonably inferable from the Contract Documents.

1.2 EXECUTION, CORRELATION AND INTENT

1.2.1 The Contract shall be signed in doubles by the Owner and Contractor, each of which shall be deemed an original, but all or which shall constitute one and the same instrument.

1.2.2 By executing the Contract, the Contractor represents that he has visited the site, familiarized himself with the local conditions under which the Work is to be performed, and correlated his observations with the requirements of the Contract Documents.

1.2.3 The intent of the Contract Documents is to include all items necessary for the proper execution and completion of the Work. Except as otherwise specifically provided, the Contractor shall furnish all labor, tools, implements, machinery, supplies, materials, and incidentals, and shall do all things necessary to perform and to complete the Work. The Contract Documents are complementary, and what is required by any one shall be as binding as if required by all. Work not covered in the Contract Documents will not be required unless it is consistent therewith and is reasonable inferable therefrom as being necessary to produce the intended results. Words and abbreviations which have well-known technical or trade meanings are used in the Contract Documents in accordance with such recognized meanings unless otherwise specifically defined herein.

1.2.4 The organization of the Specifications into division, sections and articles, and the arrangement of Drawings shall not control the Contractor in dividing the Work among Subcontractors or in establishing the extent of Work to be performed by a trade.

1.2.5 If any portion of the Contract Documents shall be in conflict with any other portion, the

various documents comprising the Contract Documents shall govern in the following order of precedence:

1.2.5.1 The Owner-Contractor Agreement;
1.2.5.2 Modifications;
1.2.5.3 Addenda;
1.2.5.4 Section 00800 - Supplementary General Conditions;
1.2.5.5 Section 00700 - General Conditions of the Contract for Construction;
1.2.5.6 Specifications - embodying all other sections in the Project Manual;
1.2.5.7 Drawings: as between schedules and information given on Drawings, the schedules shall govern; as between written dimensions given on Drawings and scaled measurements, the written dimensions shall govern; as between large-scale Drawings and small-scale Drawings, the larger scale shall govern;
1.2.5.8 Performance Bond, Labor and Material Payment Bond;
1.2.5.9 Bid/Proposal Form;
1.2.5.10 Instructions to Bidders/Proposers;
1.2.5.11 Invitation to Bid/Request for Proposal;

All such conflicts shall be reported, in writing, to the Project Manager. Schedules, lists, indexes, tables, inventories, written instruction, written descriptions, summaries, statements, classifications, specifications, written selections, or written designations, although appearing on the Drawings, are deemed to be and are “Specifications” as defined by this Subparagraph 1.2.5. The principles as set forth herein shall not alter the provisions of Subparagraph 1.2.3.

In the event there is a conflict between or among any provisions within one of the component parts of the Contract Documents, the higher standard or more stringent requirement shall govern.

1.2.6 The Contractor agrees that nothing contained in the Contract Documents or any contract between the Owner and the Architect shall create any contractual relationship between the Architect and the Contractor, any Subcontractors, Sub-subcontractors, Material Suppliers or Vendors. The Contractor acknowledges and agrees that this Contract is not intended to create, nor shall any provision be interpreted as creating, any contractual relationship between the Owner or Contractor or any third parties.

1.2.7 Any material or operation specified by reference to published specifications of a manufacturer, a society, an association, a code, or other published standard, shall comply with requirements of the listed document and project specifications; or as between referenced documents, the more stringent code or performance requirements shall govern. The Contractor, if requested, shall furnish an affidavit from the manufacturer certifying that the materials or products delivered to the Project meet the requirement specified.

1.3 OWNERSHIP AND USE OF DOCUMENTS

1.3.1 All Drawings, Specifications and copies thereof furnished by the Owner are and shall remain its property. They are to be used only with respect to this Project and are not to be used on any other project.

1.3.2 The Owner will provide conformed drawings and specifications incorporating Addenda items into the Contract Documents. A reasonable number of reproduced sets will be provided to the contractor without charge.

END OF ARTICLE 1

ARTICLE 2

ARCHITECT

2.1 DEFINITION

2.1.1 The Architect is the person or organization lawfully licensed to practice architecture, or an entity lawfully practicing architecture identified as such in the Owner-Contractor Agreement, and is referred to throughout the Contract Documents as if singular in number and masculine in gender. The term Architect means the Architect and his engineers, whether under contract or within his own organization, or his authorized representative.

2.1.2 The term Architect is interchangeable with the term Project Architect, and is exclusive of the services of the Asbestos Abatement Architect.

2.1.3 The Asbestos Abatement Architect is not a part of the Architect's organization.

2.2 SERVICES OF THE ARCHITECT

2.2.1 The Architect will provide certain services as hereinafter described.

2.2.2 Should errors, omissions, or conflicts in the Drawings, Specifications, or other Contract Documents provided by the Architect be discovered, the Architect will prepare such amendments or supplementary documents and provide consultation as may be required.

2.2.3 The Architect and his consulting engineers (including but not limited to the structural, mechanical, and electrical disciplines) will visit the site at intervals appropriate to the stage of construction to familiarize themselves generally with the progress and quality of the Work and to determine in general if the Work is proceeding in accordance with the Contract Documents. Unless otherwise provided in the Owner-Architect Agreement, the Architect and his consulting engineers will not be required to make exhaustive or continuous on-site inspection or observations to check the quality or quantity of the Work, but they shall make as many on-site inspections and observations as may reasonably be required to fulfill their obligations to the Owner. On the basis of such on-site observation, the Architect and his consulting engineers shall endeavor to guard the Owner against defects and deficiencies in the Work of the Contractor.

2.2.4 The Architect will render written field reports to the Project Manager in the form required by the Project Manager relating to the periodic visits and inspections of the Project required by Subparagraph 2.2.3.

2.2.5 The Architect will not be responsible for and will not have control or charge of construction means, methods, techniques, sequences or procedures, or for safety precautions and programs in connection with the Work, and he will not be responsible for the Contractor's failure to carry out the Work in accordance with the Contract Documents. The Architect will not be responsible for or have control or charge over the acts or omissions of the Contractor, Subcontractors, or any of their agents or employees, or any other persons performing any of the work.

2.2.6 The Architect shall at all times have access to the Work wherever it is in preparation or progress. The Contractor shall provide safe facilities for such access so the Architect may perform his functions under the Contract Documents.

2.2.7 The Project Manager will consult with the Architect regarding the Contractor's Applications for Payment and both shall sign the Applications for Payment as provided in Subparagraph

9.4.

2.2.8 As required, the Architect will render to the Project Manager interpretations necessary for the proper execution or progress of the Work, with reasonable promptness and in accordance with any time limit agreed upon.

2.2.9 All communications, correspondence, submittals, and documents exchanged between the Architect and the Contractor in connection with the Project shall be through or in the manner prescribed by the Project Manager.

2.2.10 All interpretations and decisions of the Architect will be consistent with the intent of and reasonably inferable from the Contract Documents.

2.2.11 The Architect's decision in matters relating to artistic effect will be final if consistent with the intent of the Contract Documents and approved by the Project Manager.

2.2.12 If the Architect observes any Work that does not conform to the Contract Documents, the Architect shall promptly report in writing this observation to the Project Manager. The Architect will prepare and submit to the Project Manager punchlists of the Contractor's Work which is not in conformance with the Contract Documents. The Project Manager will transmit such punchlists to the Contractor.

2.2.13 The Architect will review and take appropriate action upon Contractor's submittals such as Shop Drawings, Product Data and Samples, but only for conformance with the design concept of the Work and for general compliance with the Contract Documents. Such action shall be taken in no more than twenty-one (21) days of receipt unless otherwise authorized by the Project Manager.

2.2.14 The Project Manager will establish with the Architect procedures to be followed for review and processing of all Shop Drawings, catalog submittals, project reports, test reports, maintenance manuals, and other necessary documentation, as well as requests for changes and applications for extensions of time.

2.2.15 The Architect will prepare technical documentation for Change Orders when directed by the Project Manager.

2.2.16 The Architect and the Project Manager will conduct inspections to determine the dates of Substantial Completion and Final Completion, and will issue a final Certificate of Substantial Completion.

2.2.17 Unless otherwise provided in the Contract Documents, or the Owner-Architect Agreement, the Architect will prepare a set of reproducible record prints of Drawings showing significant changes in the Work made during the construction process, based on neatly and clearly marked-up prints, Drawings, and other data furnished by the Contractor.

2.2.18 In case of the termination of the employment of the Architect, the Owner may appoint an architect against whom the Contractor makes no reasonable objection whose status under the Contract Documents shall be that of the former architect, or the Owner may have the Project Manager assume all of the services of the Architect thereafter.

2.3 ASBESTOS ABATEMENT ARCHITECT

2.3.1 Solely with regards to asbestos abatement, the Asbestos Abatement Architect shall be afforded the same rights and authority as hereinbefore allowed the Architect.

2.3.2 The Architect is not a part of the Asbestos Abatement Architect's organization.

2.4 SEPARATE ARCHITECT, ENGINEER OR ARCHITECT/ENGINEER

2.4.1 Unless otherwise noted in the Contract Documents, the Separate Architect, Engineer or Architect/Engineer, as defined by the Supplementary General Conditions, Document 00800, shall be afforded the same rights and authority as hereinbefore allowed the Architect.

2.4.2 The Contract Documents, when applicable, shall define the portion of the Work relating to the services of the Separate Architect, Engineer or Architect/Engineer.

END OF ARTICLE 2

ARTICLE 3

OWNER

3.1 DEFINITIONS

3.1.1 The Owner is the Anchorage School District acting through its legally constituted officials, officers, employees, or agents and is referred to throughout the Contract Documents as if singular in number and masculine in gender. The term Owner means the Owner or its authorized representative or agent.

3.1.2 The Asbestos Abatement Consultant is under separate Agreement with the Owner. Communications protocol between the Contractor and the Asbestos Abatement Architect shall be as established by the Project Manager.

3.2 PROJECT MANAGER

3.2.1 The Project Manager will be the Owner's representative and agent to the Contractor with respect to the Project during construction and until the issuance of the final Certificate for Payment. The term Project Manager is referred to throughout the Contract Documents as if singular in number and masculine in gender. The Owner's communications with the Contractor and the Architect will be through the Project Manager, who will have full authority to act on behalf of the Owner with regard to all aspects of the Project except that the Owner must approve all Change Orders and payments to the Contractor. The Project Manager's actions with regard to this project will be as an agent and representative of the Owner.

3.2.2 The Project Manager is not authorized to revoke, alter, change, relax, or release any requirements of the Contract, nor to approve or accept any portion of the Work not executed in accordance with, nor to issue instructions contrary to, the Contract Documents.

3.2.3 Nothing contained within the Contract Documents shall create any contractual relationship between the Project Manager and the Contractor.

3.3 INFORMATION, SERVICES AND RIGHTS OF THE OWNER

3.3.1 The Owner, through the Project Manager, will provide administration of the Contract as hereinafter described.

3.3.2 The Owner and the Project Manager shall at all times have access to the Work whenever it is in preparation or progress. The Contractor shall provide safe facilities for such access.

3.3.3 The Owner and the Project Manager shall not be responsible for or have control or charge of the construction means, methods, techniques, sequences, or procedures, or for safety precautions and programs in connection with the Work and will not be responsible for the Contractor's failure to carry out the Work in accordance with the Contract Documents. The Project Manager will not be responsible for the acts or omissions of the Contractor, any Subcontractors, or any of their agents or employees, or any other persons performing any of the Work.

3.3.4 The Project Manager shall have authority on behalf of the Owner to condemn or reject Work when, in the Project Manager's opinion the Work does not conform to the Contract Documents. Whenever, in the Project Manager's reasonable opinion, it is considered necessary or advisable to insure the proper implementation of the intent of the Contract Documents, the Project Manager shall have the authority to require special inspection or

testing of any Work in accordance with the provisions of the Contracts Documents, whether or not such Work be then fabricated, installed, or completed.

3.3.5 The Project Manager will have authority to require additional inspection or testing of the Work in accordance with Subparagraph 7.7.3, whether or not such Work be then fabricated, installed, or completed. However, neither the Project Manager's authority to act under Subparagraphs 3.3.4 and 3.3.5, nor any decision made by the Project Manager in good faith either to exercise or not to exercise such authority shall give rise to any duty or responsibility of the Project Manager to the Contractor, any Subcontractor, any of their agents or employees, or any other persons performing any of the work.

3.3.6 The Project Manager shall have the authority and discretion to call, schedule, and conduct job meetings to be attended by the Contractor, and representatives of his Subcontractors, and Material Suppliers, and Vendors and the Architect, to discuss such matters as procedures, progress, changes, problems, claims and scheduling.

3.3.7 The Project Manager will establish procedures to be followed for processing all Shop Drawings, catalogs, and other project reports, and other documentation, test reports, and maintenance manuals.

3.3.8 The Project Manager will review all requests for changes and shall implement the processing of Change Orders, including applications for extension of the Contract time.

3.3.9 Project scheduling shall occur as set forth in Division 1, Section 01311 of the General Requirements, entitled "Schedules and Reports". The Owner and the Project Manager will not be responsible for the failure of the Contractor to plan, schedule, and execute the Work in accordance with the Contractor's accepted schedule or the failure of the Contractor to meet the Project Schedule Milestone Dates as set forth under Section 00200 hereof or the failure of the Contractor to schedule and coordinate the Work of his own trades and Subcontractors, and Material Suppliers and Vendors, or the failure of the Contractor to coordinate and cooperate with other separate contractors.

3.3.10 The Project Manager, in consultation with the Architect, will review and process all Applications for Payment by the Contractor, including the final Application for Payment.

3.3.11 The Owner and the Project Manager will not be responsible for the acts or omissions of the Contractor, or any Subcontractor, or Material Supplier and Vendor, or any contractor's, subcontractor's or Material Supplier's and Vendor's agents or employees, or any other persons performing any of the Work.

3.3.12 The Owner shall, if requested by the Contractor, furnish all existing and available surveys describing the physical characteristics, legal limitations and utility locations for the site of the Project.

3.3.13 Except as otherwise provided in the Contract Documents, the Owner shall pay for necessary easements required for permanent structures or for permanent changes in existing facilities. The Contractor shall be responsible for obtaining all necessary permits and coordinating the securing of easements, inspections and approvals for permanent structures and all associated work.

3.3.14 Information or services under the Owner's control shall be furnished by the Owner with reasonable promptness to avoid delay in the orderly progress of the Work.

3.3.15 Unless otherwise provided in the Contract Documents, the Contractor will be furnished, free of charge, all copies of Drawings and Specifications, and such supplemental

documents as are reasonably necessary for the execution of the Work.

3.3.16 The foregoing rights are in addition to other rights of the Owner enumerated herein and those provided by law.

3.4 OWNER'S RIGHT TO PERFORM WORK AND TO AWARD SEPARATE CONTRACTS

3.4.1 The Owner reserves the right to perform other work at the project site(s) with his own forces, and to award separate contracts in connection with portions of other work on the site.

3.4.2 The Contractor shall afford the Owner and separate Contractors reasonable opportunity for the introduction and storage of their materials and equipment and the execution of their Work, and shall coordinate his Work with theirs as required by the Contract Documents.

3.4.3 A pre-construction conference will be held with the Contractor, Project Manager, and other contractors performing work at the project site, for the purpose of coordinating work in areas where more than one contractor may be working. The time of the meeting will be established by the Owner's Representative prior to the Contractor commencing his work.

3.4.4 The Contractor shall attend additional coordination meetings, as requested by the Owner's Representative.

3.5 OWNER'S RIGHT TO STOP OR TO SUSPEND THE WORK

3.5.1 If the Contractor fails to correct defective Work as required by Paragraph 13.2 or fails to carry out the Work or supply labor and materials in accordance with the Contract Documents, the Owner, through the Project Manager, by a written order may order the Contractor to stop the Work, or any portion thereof, until the cause for such order has been eliminated; however, this right of the Project Manager to stop the Work on behalf of the Owner shall not give rise to any duty on the part of the Project Manager to exercise this right for the benefit of the Contractor or any other person or entity.

3.5.2 The Project Manager may order the Contractor in writing to suspend, delay, or interrupt all or any part of the Work for such period of time as he may determine to be appropriate for the convenience of the Owner.

3.5.3 Upon receipt of any such suspension order, the Contractor shall immediately comply with its terms and take all reasonable steps to minimize incurring costs allocated to the Work covered by the order during the period of Work suspension.

3.5.4 If the performance of all or any part of the Work is suspended, or delayed, or interrupted by the Owner or the Project Manager pursuant to Subparagraph 3.5.2, the Contractor may make application for an adjustment in contract time and contract sum pursuant to Paragraph 12.2, and Division 1, Section 01311, Paragraph 2.03, respectively. No such adjustment shall be made if the performance of the Work is suspended by the Owner pursuant to Subparagraph 3.5.1.

3.6 OWNER'S RIGHT TO CARRY OUT THE WORK

3.6.1 If the Contractor defaults or neglects to carry out the Work in accordance with the Contract Documents and fails within seven (7) days after receipt of written notice from the Project Manager to commence and continue correction of such default or neglect with diligence and promptness, the Owner may, after seven (7) days following receipt by the Contractor of an additional written notice and without prejudice to any other remedy he may have,

make good such deficiencies and may further elect to complete all Work thereafter through such means as the Owner may select, including the use of a new Contractor. In such a case an appropriate Change Order shall be issued deducting from the payments then or thereafter due the Contractor the cost of correcting such deficiencies, including additional Owner administrative and legal costs, and compensation for the Architect's and the Project Manager's additional services made necessary by such default, neglect or failure. If the payments then or thereafter due the Contractor are not sufficient to cover such amount, the Contractor shall pay the difference to the Owner.

3.7 AUDIT

3.7.1 The Owner shall have access to the Contractor's books, accounts, records, invoices and other records and documents pertaining to the Project at all reasonable times for the purpose of inspecting and auditing such. The Contractor shall provide to the Owner his daily manpower and equipment reports for all Subcontractors and any and all information requested or required by the Owner to validate or verify an Application for Payment, claim for cost or a requisition. The Contractor shall have no right to additional compensation or time in the event a requisition is delayed due to the inability of the Owner to validate or verify an Application for Payment due to the failure or refusal of the Contractor to allow such inspection or audit or to provide such requested information.

3.7.2 The Contractor shall maintain all data and records pertinent to the Work performed under this Contract in accordance with generally accepted accounting principles, and shall preserve and make available all data and records until the expiration of three (3) years from the date of final payment under this Contract, or for such longer period, if any, as is required by applicable statute, pending litigation, or by other articles of this Contract. The Owner and its authorized representatives shall have access to all such data and records for such time period to inspect, audit and make copies thereof during normal business hours.

3.7.3 The Contractor covenants and agrees that it shall require that any Subcontractor and any Sub-Subcontractor utilized in the performance of this Contract shall permit the authorized representatives of the Owner to similarly inspect and audit all data and records of said Subcontractors and Sub-Subcontractors relating to the performance of said Subcontractors and Sub-Subcontractors under this Contract for the same time period specified above.

END OF ARTICLE 3

ARTICLE 4

CONTRACTOR

4.1 DEFINITION

4.1.1 The Contractor is the person or organization identified as such in the Owner-Contractor Agreement and is referred to throughout the Contract Documents as if singular in number and masculine in gender. The term Contractor means the Contractor or his authorized representative, who shall have the authority to bind the Contractor in all matters pertinent to this Contract.

4.2 REVIEW OF CONTRACT DOCUMENTS

4.2.1 Before placing his proposal to the Owner, and continuously after execution of the Contract, the Contractor shall carefully study and compare the Contract Documents and shall at once report to the Owner, through the Project Manager, any error, inconsistency or omission he may discover, including any requirement which may be contrary to any law, ordinance, rule, regulation or order of any public authority bearing on the performance of the Work. By submitting his proposal or bid for the Contract and the Work under it, the Contractor agrees that the Contract Documents appear accurate, consistent, and complete insofar as can reasonably be determined. If the Contractor has reported in writing an error, inconsistency or omission, has promptly stopped the affected work until otherwise instructed, and has otherwise followed the instructions of the Owner, the Contractor shall not be liable to the Owner for any damage resulting from any such errors, inconsistencies or omissions in the Contract Documents. The Contractor shall perform no portion of the Work at any time without Contract Documents and, where required, approved Shop Drawings, Product Data or Samples for such portion of the Work.

4.3 SUPERVISION AND CONSTRUCTION PROCEDURES

4.3.1 The Contractor shall supervise and direct the Work, using his best skill and attention. He shall be solely responsible for and have control over all construction means, methods, techniques, sequences and procedures and for coordinating all portions of the Work under the Contract.

4.3.2 The Contractor shall be responsible to the Owner for the acts and omissions of his employees, Subcontractors, and Material Suppliers and Vendors, and their agents and employees, and other persons performing any of the work.

4.3.3 The Contractor shall not be relieved from his obligations to perform the Work in accordance with the Contract Documents either by the activities or duties of the Architect or the Project Manager in their administration of the Contract, or by inspections, tests or approvals (or the lack thereof) required or performed under Paragraph 7.7 by persons other than the Contractor.

4.3.4 Independent of this Contract, the Owner has undertaken a long term asbestos abatement program by which the Owner intends to properly document the existence of asbestos-contained materials and the lawful removal of ACM by qualified asbestos abatement contractors or subcontractors in accordance with the Asbestos Hazard Emergency Response Act (AHERA) and the Asbestos School Hazard Abatement Reauthorization Act (ASHARA). As part of this asbestos abatement program, the Owner has employed a private consultant to locate asbestos-containing materials present in the Owner's facilities. A copy of the AHERA report as it relates to the facility which is involved in this Contract can be obtained from the Owner by contacting the Project Manager.

4.3.4.1 Before starting the Work or any Section of the Work, the Contractor shall inspect or, if using a Subcontractor for a Section of the Work, shall cause his Subcontractor to inspect all preparatory work, including that performed prior to the commencement of the Work under this Contract, for the presence of suspected asbestos-containing materials.

4.3.4.2 If the Contractor or his Subcontractor encounters any asbestos-containing material or suspected asbestos-containing material -- whether such material is identified in the AHERA report or the private consultant's report or not -- the Contractor shall bring it to the immediate attention of the Project Manager by timely written notice. Such notification shall be considered timely if received by the Project Manager within two (2) days after the discovery of the asbestos-containing material or suspected asbestos-containing material by the Contractor or by a Subcontractor if the Contractor uses a Subcontractor to perform that Section of the Work. If the Contractor does not give timely notice of the presence of asbestos-containing material or suspected asbestos-containing material, the Contractor will not receive additional compensation for delay caused by the necessity of the Owner to stop work and abate asbestos-containing material during the course of the Work. Failure of a Subcontractor to report the presence of asbestos-containing material or suspected asbestos-containing material to the Contractor shall not relieve the Contractor of his responsibilities hereunder.

4.3.4.3 If the Contractor, or his employees, agents or subcontractors intentionally or negligently disturbs or removes, or causes to be disturbed or removed, all or a portion of asbestos-containing material, the Contractor shall indemnify, hold harmless and defend the School District and the Project Manager from and against any claims, damages, losses and expenses, and alleged claims, damages, losses and expenses, including but not limited to attorney's fees, arising out of or resulting from any cleanup/decontamination work, medical treatment, or legal action arising or resulting from said intentional or negligent disturbance or removal of asbestos-containing material.

4.3.5 The Contractor shall make all necessary arrangements and so conduct the Work that all parts of the same will be carried out simultaneously and harmoniously and that the work of installing the various sections or items of same shall not interfere with or retard the progress of other Work.

4.3.6 If it becomes necessary at any time during the progress of the Work to move materials and/or equipment which have been temporarily located or stored, the Contractor shall move them or cause them to be moved, at his expense. Care shall be taken that no part of the Work shall be overloaded at any time.

4.3.7 The Contractor shall furnish all required information to ensure continuity between various sections of the Work and to avoid delay and obviate defects on any part of the whole Work, all as approved by the Owner.

4.3.8 Any damage caused by the handling or installation of materials or equipment, or the carrying out of any portion of the Work must also be made good by the Contractor to the satisfaction of the Project Manager.

4.3.9 The Contractor shall compare all the various drawings, and shall install Work in a manner to provide for all clearances and finishes indicated thereon. Work under each trade shall be arranged to clear piping, equipment, etc., of all other trades.

4.3.10 The Contractor shall inform himself fully regarding any peculiarities and limitations of the

space available for the installation of the material. He shall see that all equipment, such as valves, or other appliances necessary to be reached from time to time for operations and maintenance are made readily accessible.

4.3.11 The construction of the Work may develop conditions that render impracticable the location of equipment as shown or noted. In such cases, before installing his Work, the Contractor shall call the condition to the attention of the Project Manager for resolution.

4.3.12 It shall be the Contractor's sole responsibility to so coordinate the Work that chases or other recesses in walls shall be provided where required, and that reasonable clearance between the work of various trades shall be maintained. The layout for openings and chases through walls, floors, and partitions, etc., shall be arranged in advance of the actual construction and the work carried out without unnecessary and superfluous cutting, etc., after the Work has been completed.

4.3.13 Dimensions shall be verified by the measurements of the buildings and the property, and the Contractor shall be responsible for all of his work fitting in place in a satisfactory and workmanlike manner.

4.3.14 The Contractor has carefully examined, in detail, all of the Drawings and Specifications and the time established for completion of the Work, and he accepts them as adequate to meet the requirements specified.

4.3.15 The Contractor shall be responsible for coordinating the work performed by any artist in connection with the project's ornamentation with the construction of this project, so that there shall be no unnecessary delay or interference in connection with said construction.

4.3.16 The Contractor shall coordinate and generally supervise the Work of this Contract and shall coordinate his Work with Work performed under Separate Contracts by mutual arrangement and agreement with the Contractors for those Contracts and the Project Manager. Unresolved disputes will be finally resolved by the Project Manager, subject to approval of the Owner, and the dispute resolution provisions of Subparagraph 12.5.

4.4 LABOR AND MATERIALS

4.4.1 Unless otherwise provided in the Contract Documents, the Contractor shall provide and pay for all labor, materials, equipment, tools, construction equipment and machinery, water, heat, utilities, transportation, and other facilities and services necessary for the execution and completion of the Work in accordance with the Contract Documents, and any applicable building permit, conditional and final certificate(s) of occupancy, code or statute, whether specifically required by the Contract Documents or whether their provision may reasonably be inferred as necessary to produce the intended results, whether temporary or permanent and whether or not incorporated or to be incorporated in the Work.

4.4.2 The Contractor shall at all times enforce strict discipline and good order among his employees and shall not employ on the Work any unfit person or anyone not skilled in the task assigned to him. The Project Manager may, by notice in writing, require the Contractor to promptly remove from the site of the Work any employee or worker the Project Manager deems incompetent, careless or otherwise objectionable including violation of District Policies relating to alcohol, illegal drugs, or firearms on District property.

4.4.3 The Contractor shall be responsible for ensuring that the Work is completed in a skillful and workmanlike manner.

4.5 WARRANTY

4.5.1 The Contractor warrants to the Owner and the Architect that all materials and equipment furnished under this Contract will be new unless otherwise specified, and that all Work will be of good quality, free from faults and defects and in conformance with the Contract Documents. All Work not conforming to these requirements, including substitutions not properly approved and authorized, is defective. If required by the Project Manager or the Architect, the Contractor shall furnish satisfactory evidence as to the kind and quality of materials and equipment. This warranty is not limited by the provisions of Paragraph 13.2.

4.5.2 The warranties set forth in this Paragraph 4.5 and elsewhere in the Contract Documents shall survive final acceptance under Paragraph 9.9.

4.6 TAXES

4.6.1 The Contractor shall pay all sales, consumer, use and other similar taxes for the Work or portions thereof provided by the Contractor which are legally enacted at the time bids are received, whether or not yet effective.

4.7 PERMITS, FEES AND NOTICES

4.7.1 Except as specifically provided in Subparagraph 3.3.13 the Contractor shall secure and pay for (1) all permits and governmental fees, licenses and inspections necessary for the proper execution of the Work which are legally required at the time the bids are received, and (2) all permits and governmental fees, licenses and inspections from any agency or department of the Municipality of Anchorage that would be necessary for the proper execution of the Work or legally required at the time bids are received just as if the Work were performed and the Project located within the Municipality of Anchorage. The Municipality of Anchorage shall be considered a “public authority bearing on the performance of the Work” and a “public authority having jurisdiction” for purposes of this Contract.

4.7.1.1 The Anchorage School District has paid for the Municipality of Anchorage’s Building Plan Review and Building Fee Permit. Contractor shall obtain permit upon notice from Project Manager.

4.7.2 The Contractor shall give all notices and comply with all such laws, ordinances, rules, regulations and lawful orders of any public authority bearing on the performance of the Work.

4.7.3 If the Contractor performs any Work knowing it to be contrary to any such laws, ordinances, rules, regulations or orders of any public authority bearing on the performance of the Work, and does so without reasonable notice to the Project Manager, the Contractor shall assume full responsibility therefore and shall bear all costs attributable thereto.

4.7.4 Notification, coordination and completion of the installation of all required utilities, whether temporary or permanent, is the sole responsibility of the Contractor. The Owner shall not be responsible for any damage or delay caused by any party’s inability to perform installations in the time frame desired by the Contractor.

4.8 ALLOWANCES

4.8.1 The Contractor shall include in the Contract Sum all allowances stated in the Contract Documents. Items covered by these allowances shall be supplied for such amounts and by such persons as the Owner may direct, but the Contractor will not be required to employ persons against whom he makes a reasonable objection.

4.8.2 Unless otherwise provided in the Contract Documents:

4.8.2.1 These allowances shall cover the cost to the Contractor, less any applicable trade discount, of the materials and equipment required by the allowance delivered at the site, and all applicable taxes;

4.8.2.2 The Contractor's costs for unloading and handling on the site, labor, installation costs, overhead, profit and other expenses contemplated for the original allowance shall be included in the Contract Sum and not in the allowances;

4.8.2.3 Whenever the cost is more than or less than the allowance, the Contract Sum shall be adjusted accordingly by Change Order, the amount of which will recognize changes, if any, in handling costs on the site, labor, installation costs, overhead, profit and other expenses.

4.9 SUPERINTENDENT

4.9.1 The Contractor shall employ a competent superintendent and necessary assistants who shall be in attendance full-time at the Project Site during the progress of the Work. The superintendent shall represent the Contractor, and all communications given to the superintendent shall be as binding as if given to the Contractor. If requested by the Project Manager, the Contractor shall provide a management chart and a list of personnel in a number stipulated by the Project Manager which shall comprise the superintending staff. In such event, all references to the superintendent elsewhere in the Contract Documents shall mean the superintending staff.

4.9.2 The superintendent shall be in attendance at the Project Site not less than eight (8) hours per day, five (5) days per week, unless the job is closed down due to a general strike or conditions beyond the control of the Contractor or until termination of the Contract in accordance with the Contract Documents. The superintendent shall not be employed on any other project during the course of the Work.

4.9.3 In the event any of the following conditions shall exist, the Contractor shall require that his superintendent be at the Project Site not less than ten (10) hours per day, six (6) days per week:

4.9.3.1 Should Substantial Completion not be accomplished on schedule.

4.9.3.2 Should Final Completion not be accomplished on schedule.

4.9.3.3 Should the Contractor's progress schedule indicate the Contractor to be fourteen (14) or more days behind schedule at any time during construction up until thirty (30) days prior to scheduled Substantial Completion.

4.9.3.4 Should the Contractor's progress schedule indicate the Contractor to be seven (7) or more days behind schedule at any time during the last thirty (30) days prior to scheduled Substantial Completion.

4.10 CONSTRUCTION SCHEDULE

4.10.1 The Contractor shall prepare and submit to the Project Manager for the Owner's review and acceptance a construction schedule pursuant to and in accordance with Division 1, Section 01311 of the General Requirements entitled "Project Schedule."

4.11 DOCUMENTS AND SAMPLES AT THE SITE

4.11.1 The Contractor shall maintain at the site for the Owner one record copy of all Drawings, Specifications, Addenda, Change Orders and other Modifications, in good order and marked currently to record all changes made during construction, and approved Shop Drawings, Product Data and Samples. These shall be available to the Project Manager and the Architect and shall be delivered to the Project Manager upon substantial completion of the Work.

4.12 SHOP DRAWINGS, PRODUCT DATA AND SAMPLES

4.12.1 Shop Drawings are drawings, diagrams, schedules and other data specially prepared for the Work by the Contractor or any Subcontractor, manufacturer, supplier or distributor to illustrate some portion of the Work.

4.12.2 Product Data are illustrations, standard schedules, performance charts, instructions, diagrams, and other information furnished by the Contractor to illustrate a material, product or system for some portion of the Work.

4.12.3 Samples are physical examples which illustrate materials, equipment or workmanship and establish standards by which the Work will be judged.

4.12.4 The Contractor shall review, approve and submit using the ASD Procore Construction Management Program, with reasonable promptness and in such sequence as to cause no delay in the Work or in the work of the Owner or any separate contractor, all Shop Drawings, Product Data and Samples required by the Contract Documents, or subsequently by the Project Manager. The Contractor's Shop Drawings, Product Data, and Samples submissions shall be coordinated and consistent with the Contractor's Project Scheduling obligations under Division 1, Section 01311 of the Contract Documents. Shop Drawings and Samples shall be properly identified as specified, or as the Project Manager may require. At the time of submission, the Contractor shall inform the Architect in writing of any deviation in the Shop Drawings or Samples from the requirements of the Contract Documents.

4.12.5 By approving and submitting Shop Drawings, Product Data and Samples, the Contractor represents that he has determined and verified all materials, field measurements, and field construction criteria related thereto, and that he has checked and coordinated the information contained within such submittals with the requirements of the Work and of the Contract Documents. The Contractor shall adhere to any supplementary processing and scheduling instruction pertaining to Shop Drawings which may be issued by the Project Manager.

4.12.6 The Contractor shall not be relieved of responsibility for any deviation from the requirements of the Contract Documents by the Architect's approval and Project Manager's review of Shop Drawings, Product Data or Samples under Subparagraph 2.2.14 unless the Contractor has specifically informed the Architect and Project Manager in writing of such deviation at the time of submission and the Architect and Project Manager have given written approval to the specific deviation. The Contractor shall not be relieved from responsibility for errors or omission in the Shop Drawings, Product Data or Samples by the Architect's approval of or Project Manager's review thereof.

4.12.7 The Contractor shall promptly make corrections required by the Architect and shall resubmit the required number of corrected copies of Shop Drawings or new Product Data or Samples. The Contractor shall direct specific attention, in writing or on resubmitted Shop Drawings, Product Data or Samples, to revisions other than those requested by the

Architect on previous submittals. Resubmittals necessitated by required corrections due to Contractor's errors or omissions, or less than complete submittals as required by the specifications, shall not be cause for extension of Contract Time.

4.12.8 The Contractor shall keep on the job at all times copies of approved Shop Drawings, Product Data or Samples which bear the review stamp of the Architect/Engineer.

4.12.9 The review of Shop Drawings, Product Data or Samples by the Architect and Project Manager shall not relieve the Contractor from his responsibility to coordinate the work of the Subcontractors.

4.12.10 The review of Shop Drawings, Product Data or Samples by the Architect and the Project Manager shall not relieve the Contractor of his responsibilities to construct the work in accordance with the Contract Documents.

4.12.11 The review of Shop Drawings, Product Data or Samples by the Architect shall not be construed as an approval of the quantities of materials or confirmation of dimensions.

4.12.12 In preparing a schedule for delivery of materials the Contractor shall allow reasonable time for the approval, including resubmissions due to Contractor's errors and omissions, of Shop Drawings, Product Data or Samples.

4.12.13 When Shop Drawings, Cuts, or Brochures are forwarded to the Architect by the Contractor for approval, a copy of the Contractor's letter of transmittal with project name, Contractor's name, number of drawings, title and other pertinent data covering each transaction is to be mailed to the Project Manager. The Architect and his consulting Engineers shall follow the same procedure when it is necessary for them to return or transfer Shop Drawings, Cuts or Brochures either between themselves or to the Contractor for changes, corrections or resubmittal, so that the Project Manager can record and follow procedure for each transaction to finality.

4.12.13.1 Pursuant to and consistent with the Contractor's Project Schedule development obligations under Division 1, Section 01311 of the Contract Documents, the Contractor shall submit Shop Drawings, Product Data and Sample submission schedule information to the Architect and Project Manager. The Contractor shall submit, and the Architect and Project Manager will review, the Contractor's submittals in accordance with the Contractor's accepted Preliminary and Detailed Project Schedules, as required under Division 1, Section 01311 of the Contract Documents. The Contractor shall submit no Shop Drawings, Product Data or Samples which do not comply with the Contract Documents.

4.12.13.2 No portion of the Work requiring a Shop Drawing, Product Data or Sample submission shall be commenced until such submission has been reviewed, and approved, by the Architect in accordance with Subparagraph 2.2.13. All such portions of the Work shall be in accordance with approved submittals.

4.12.13.3 No claim for delay shall be allowed the Contractor on account of failure of the Architect to furnish drawings or approval of Shop Drawings and Samples until at least twenty-one (21) days after submission to the Architect.

4.12.14 Shop Drawings, Product Data, and Samples shall be dated and shall bear the name of the Project; a description or the names of equipment, materials and items; and complete identification of locations at which materials or equipment are to be installed.

4.12.15 In submitting for approval the use of any material or device as the equal of some other material or device specified by name, the Contractor shall submit a sample of the material specified and also a sample of the material proposed to be submitted as the equal thereof, together with any supporting data necessary to reasonably allow the Architect and the Project Manager to review the material.

4.12.16 In case of devices, samples of which cannot readily be submitted, catalogs and other data, shall be submitted.

4.12.17 Any material or device proposed to be substituted shall not be deemed acceptable except by written communication from the Architect and Project Manager.

4.12.18 All Work for which samples are required to be submitted and approved shall be executed and performed in conformity with the said approved samples.

4.13 USE OF SITE

4.13.1 The Contractor shall confine operations at the site to areas permitted by law, ordinances, permits and the Contract Documents and shall not unreasonably encumber the building or site with any materials or equipment.

4.13.2 The Contractor shall coordinate all of his operations with and secure approval from the Project Manager before using any portion of the site.

4.13.3 All Work or materials of every description subject to injury during the course of the Work shall be fully protected from damage from any source. In any event, should any Work or materials under this Contract, become damaged in any way or manner the Contractor shall repair and perfect the same at his own expense, and when the entire Contract is completed, the building and premises shall be delivered to the Owner without defects. Any damage which may be caused by the installation of any portion of the Work covered by these specifications and conditions, or by the Contractor shall be satisfactorily made good and repaired by the Contractor without cost to the Owner.

4.13.4 The Contractor shall provide and maintain all lights, footways, guards, fences, gates, etc., for the proper protection of the public, and shall comply with all municipal rules, regulations, ordinances and laws, relating to the prosecution of his work.

4.13.5 The Contractor shall properly and carefully shore up or otherwise support all live water, sewer and gas pipes, electric wires, free-standing walls, conduit, etc., which may be encountered.

4.13.6 The Contractor shall furnish for his use, throughout the entire construction all scaffolding, ladders, decking or runways as needed to perform the Work under this Contract.

4.13.7 The Contractor shall construct elevators, cranes and other rigging, concrete lifts, etc., as required for his Work.

4.13.8 All such construction shall be carried out as required by the code or authority having jurisdiction. No cranes or other heavy equipment shall be located or moved in such manner as to damage or strain the framework or any part(s) of the proposed building and/or existing building.

4.13.9 As construction proceeds, the Project Manager may deem it necessary to have the Contractor move trailers, fences, stored materials, etc., to facilitate the construction. Upon written notice from the Project Manager, this will be done without additional cost to the

Owner.

4.13.10 When school is in session the Contractor will be restricted to the areas which do not interfere with school operations. These areas shall be safety and security fenced to not impact school operations. Additional areas may be utilized upon concurrence of the Project Manager. The Contractor shall minimize his impact on the educational program while his work is in progress. Workers must stay out of school while school is in session. All work in the existing school can only take place during the hours approved by the Project Manager

4.13.11 The Contractor must maintain interior building fire exits through the construction areas and maintain these exits during all school operation hours, to the satisfaction of the Authorities having Jurisdiction. These exit routes may not be modified without concurrence of the Project Manager and the School Principal.

4.13.12 The Contractor must maintain fire equipment access routes open to site and buildings. According to UFC 10.502 fire equipment access and water supplies shall be installed and made serviceable prior to and during the time of construction. This is the Contractor's responsibility to coordinate.

4.13.13 The Contractor shall keep the boilers operational while the average outside temperature is below 60° F while the school program is in operation or at any time temperature is below 40° F, to protect facility utility systems.

4.14 CUTTING AND PATCHING OF WORK

4.14.1 The Contractor shall be responsible for all cutting, fitting or patching that may be required to complete the Work or to make its several parts fit together properly.

4.14.2 The Contractor shall not damage or endanger any portion of the Work or the work of the Owner or any separate contractors by cutting, patching or otherwise altering any work, or by excavation. The Contractor shall not cut or otherwise alter the work of the Owner or any separate Contractor except with the written consent of the Owner and of such separate Contractor. The Contractor shall not unreasonably withhold, from the Owner, or any separate contractor his consent to cutting or otherwise altering the Work.

4.14.3 Existing structures and facilities including but not limited to building, utilities, topography, streets, curbs, walks, etc., that are damaged or removed due to required excavations or other construction work, shall be patched, repaired or replaced by the Contractor to the satisfaction of the Project Manager, the owner of such structures and facilities, and authorities having jurisdiction. In event the local jurisdictional authorities require that such repairing and patching be done with their own labor and materials, the Contractor shall abide by such regulations and pay for such work.

4.14.4 Whenever, for the convenience of work, an oversized opening has been provided, it shall be the responsibility of the Contractor requesting and requiring such opening to eventually fill unused portions of such openings with the appropriate material and with special attention to penetrations of firewalls. Such repair shall be in accordance with Paragraph 4.14.1.

4.15 CLEANING UP

4.15.1 The Contractor at all times shall keep the premises free from accumulation of waste materials or rubbish caused by his operations. At the completion of the Work he shall remove all his waste materials and rubbish from and about the Project as well as all his

tools, construction equipment, machinery and surplus materials.

4.15.2 If the Contractor fails to clean up during or at the substantial or final completion of his Work, the Owner may do so as provided in Paragraph 6.3 and the costs thereof shall be charged to the Contractor.

4.16 COMMUNICATIONS

4.16.1 The Contractor shall forward all communications to the Architect or the Owner through the Project Manager, except as described under Paragraph 4.12.13.

4.17 ROYALTIES AND PATENTS

4.17.1 The Contractor shall pay all royalties and license fees. He shall defend all suits or claims for infringement of any patent rights and shall save the Owner harmless from loss on account thereof, except that the Owner shall be responsible for all such loss when a particular design, process or the product of a particular manufacturer or manufacturers is specified, but if the Contractor has reason to believe that the design, process or product specified is an infringement of a patent, he shall be responsible for such loss unless he promptly gives such information to the Project Manager.

4.18 INDEMNIFICATION

4.18.1 To the fullest extent permitted by law, the Contractor shall, at his sole cost and expense, indemnify, hold harmless and defend the Owner, the Municipality of Anchorage and their Board or Assembly members, administrators, representatives, and employees, and the Project Architect and its agents, representatives, and employees from and against all claims, actions, judgments, costs, liabilities, penalties, damages, losses and expenses, including but not limited to attorneys' fees, which arise out of or result from the performance of the Work, and which are:

4.18.1.1 Attributable to bodily injury, sickness, disease or death, or to injury to, pollution of, or destruction of property (other than the Work itself) including the loss of use resulting therefrom; and

4.18.1.2 Caused by the default of the Contractor, or by any act, whether negligent or wrongful, or omission of the Contractor, any Subcontractor, Material Supplier or Vendor, anyone directly or indirectly employed by any of them or anyone directly or indirectly employed by any of them or anyone for whose acts any of them may be liable.

4.18.2 In any and all claims against the Owner or the Municipality of Anchorage or their Board or Assembly members, administrators, representatives or employees, and the Project Architect and its agents, representatives, and employees by any employee of the Contractor, any Subcontractor, anyone directly or indirectly employed by any of them or anyone for whose acts any of them or anyone for whose acts any of them may be liable, the indemnification obligation under this Paragraph 4.18 shall not be limited in any way by any limitation on the amount or type of damages, compensation or benefits payable by or for the Contractor and Subcontractor under worker's compensation acts, disability benefit acts or other employee benefit acts.

4.19 PERSONS AUTHORIZED TO SIGN DOCUMENTS

4.19.1 The Contractor, within five (5) days after the Notice to Proceed shall file with the Project Manager a list of all persons who are authorized to sign documents such as contracts,

modifications, schedules, certificates, and affidavits on behalf of the Contractor and to fully bind the Contractor to all the Conditions and provisions of such documents, except that in the case of a corporation he shall file with the Project Manager a certified copy of a resolution of the Board of Directors of the corporation in which are listed the names and titles of corporation personnel who are authorized to sign documents on behalf of the corporation and to fully bind the corporation to all the conditions and provisions of such documents. This person, or at least one of these persons, shall be available to meet in Anchorage, Alaska, with the Owner or his representative(s) to discuss, negotiate and/or resolve any Change Order or other Modification to the Contract or any other matter needing resolution by the parties as determined at the sole discretion of the Owner within forty-eight (48) hours after receipt of written notice, at no additional cost to the Owner.

4.20 CONDITIONS AFFECTING THE WORK

4.20.1 The Contractor shall be responsible for taking all steps necessary to ascertain the nature and location of the Work and the general and local conditions which can affect the Work or the cost thereof. Failure by the Contractor to fully acquaint himself with conditions which may affect the Work, including, but not limited to conditions relating to transportation, handling, storage of materials, availability of labor, water, roads, weather, topographic and subsurface conditions, multi-prime contract conditions, applicable provisions of law, and the character and availability of equipment and facilities needed prior to and during the execution of the Work, shall not relieve the Contractor of his responsibilities under the Contract Documents and shall not constitute a basis for an adjustment in the Contract Sum or the Contract Time under any circumstances. The Owner assumes no responsibility for any understanding or representation about conditions affecting the Work made by any of his officers, employees, representatives, or agents prior to the execution of the Contract, unless such understandings or representations are expressly stated in the Contract Documents.

4.20.2 Until final acceptance by the Owner, the Contractor shall be in complete control of and fully responsible for the Work.

4.20.3 The Contractor shall give to the proper authorities all required notices relating to the Work in his charge, and shall be responsible for all acts and events which are violations of the law or which would be violations of the law had the Work been performed or the Project located within the Municipality of Anchorage.

4.20.4 Wherever herein mention is made of any article, material or workmanship to be in accordance with the laws, ordinances, building code, Underwriter’s Code, and A.S.T.M. Specifications or similar expressions, the requirement of these laws, ordinances, etc., shall be construed as the minimum requirements of these Specifications, and all articles, materials and workmanship required by these laws, ordinances, etc., shall be provided by the Contractor without any additional cost to the Owner.

4.20.5 Where the requirements of the laws, ordinances, etc., are mandatory, they shall govern.

4.20.6 Where the requirements of the Specifications call for higher grade or are not in conflict with the laws, ordinances, etc., the Specifications shall govern.

4.20.7 In case of any apparent conflict between the Specifications and such laws, ordinances, etc., the Contractor shall immediately call the attention of the Project Manager (in writing) to such conflict for decision, before proceeding with any work which may involve such conflict.

END OF ARTICLE 4

ARTICLE 5

SUBCONTRACTORS

5.1 DEFINITION

5.1.1 A Subcontractor is a person, organization or entity who has a direct contract with the Contractor to perform any of the Work. The term Subcontractor is referred to throughout the Contract Documents as if singular in number and masculine in gender and means a Subcontractor or his authorized representative. The term Subcontractor does not include any separate contractor or his subcontractors.

5.1.2 A Sub-subcontractor is a person or entity who has a direct or indirect contract with a Subcontractor to perform any of the Work. The term Sub-subcontractor is referred to throughout the Contract Documents as if singular in number and masculine in gender and means a Sub-subcontractor or an authorized representative thereof.

5.1.3 Nothing contained in the Contract Documents is intended to, nor shall it create, any contractual relationship between the Owner, the Project Manager, the Architect, or any of their agents, employees, or representatives and any Subcontractor or Sub-subcontractor.

5.2 AWARD OF SUBCONTRACTS AND OTHER CONTRACTS FOR PORTIONS OF THE WORK

5.2.1 The Contractor, in compliance with the requirements of the Contract Documents, shall furnish to the Project Manager in writing the names of the persons or entities (including those who are to furnish materials or equipment fabricated to a special design) proposed for each of the principal portions of the Work. The Project Manager will within ten (10) days of receipt of such information reply to the Contractor in writing stating whether or not the Owner, after due investigation, has reasonable objection to any such proposed person or entity. Failure of the Project Manager to reply within a reasonable time shall constitute notice of no reasonable objection. The Contractor understands and agrees that no contractual agreement exists for any part of the Work under this Contract between the Owner and any of the Contractor's Subcontractors or Sub-subcontractors. Further, the Contractor understands and agrees that he alone is responsible to the Owner for all of the Work under this Contract and that any review of Subcontractors or Sub-subcontractors by the Owner or Project Manager will not in any way make the Owner responsible to any Subcontractor or Sub-subcontractor, nor responsible for the actions or failures of any Subcontractor or Sub-subcontractor.

5.2.1.1 Within ten (10) days after the Notice to Proceed, the Contractor shall furnish to the Project Manager, in writing, for acceptance by the Owner, a list of names of the Subcontractors, Sub-subcontractors, and Material Suppliers and Vendors, proposed for the principal portions of the Work.

5.2.1.2 Within thirty-five (35) days after Notice to Proceed, the Contractor shall submit to the Project Manager, copies of Purchase Orders or other satisfactory evidence of purchase for all major materials.

5.2.2 The Contractor shall not contract with any such proposed person or entity to whom the Project Manager has made reasonable objection under the provisions of this Subparagraph.

5.2.2.1 The Contractor shall not be required to contract with anyone to whom he has a reasonable objection. There shall be no entitlement to additional compensation based upon the Project Manager's reasonable objection made

under this Section.

5.2.3 If the Project Manager has reasonable objection to any such proposed person or entity, the Contractor shall submit a substitute to whom the Project Manager has no reasonable objection.

5.2.4 The Contractor shall make no substitution for any Subcontractor, person or entity previously selected if the Project Manager makes reasonable objection to such substitution.

5.2.5 During the course of the Project the Contractor must notify the Project Manager in writing regarding any changes in any Work by any Subcontractor, Sub-subcontractor, Material Supplier or Vendor.

5.3 SUBCONTRACTUAL RELATIONS

5.3.1 By an appropriate agreement, written where legally required for validity, the Contractor shall require each Subcontractor, to the extent of the Work to be performed by the Subcontractor, to be bound to the Contractor by the terms of the Contract Documents, and to assume toward the Contractor all the obligations and responsibilities which the Contractor, by these Documents, assumes toward the Owner. Said agreement shall preserve and protect the rights of the Owner under the Contract Documents with respect to the Work to be performed by the Subcontractor so that the subcontracting thereof will not prejudice such rights, and shall allow to the Subcontractor, unless specifically provided otherwise in the Contractor-Subcontractor agreement, the benefit of all rights, remedies and redress against the Contractor that the Contractor, by these Documents, has against the Owner. Where appropriate, the Contractor shall require each Subcontractor to enter into similar agreements with his Sub-subcontractors. The Contractor shall make available to each proposed Subcontractor, prior to the execution of the Subcontract, copies of the Contract Documents to which the Subcontractor will be bound by this Paragraph 5.3, and identify to the Subcontractor any terms and conditions of the proposed Subcontract which may be at variance with the Contract Documents. Each Subcontractor shall similarly make copies of such Documents available to his Sub-subcontractors, Material Suppliers or Vendors.

5.3.2 In addition to Sub-Contractual agreement in Paragraph 5.3.1, the Contractor shall allow the Subcontractor, Sub-subcontractor, Material Supplier or Vendor to notify the Project Manager due to failure of payment, unwarranted retainage or deductions of payment or unwarranted lateness of payment.

5.3.3 As a condition precedent to the acceptance of the Contractor’s proposed Preliminary and Detailed Project Schedules by the Project Manager, each major Subcontractor shall in writing, with the submission of said schedules by the Contractor, confirm that they have reviewed the Contractor’s proposed Project Schedules, and that each concurs with the activity breakdowns, durations, cost loading, and logic as relates to each major Subcontractor’s scope of the Work and the incorporation of said Work into the Contractor’s proposed Preliminary and Detailed Project Schedules, as prescribed under Division 1, Section 01311 of the General Requirements of the contract documents.

5.4 PREPARATORY WORK

5.4.1 Before starting work, the responsible Subcontractor shall carefully examine all preparatory Work that has been executed to receive his Work. He shall check carefully, by whatever means are required, to ensure that his work and adjacent related Work will finish to proper contours, planes, and levels. He shall promptly notify the Contractor and the Project

Manager of any defects or imperfections in preparatory Work which will, in any way, affect satisfactory completion of his Work. Absence of such notification will be construed as an acceptance of preparatory work and later claims of defects therein will not be recognized.

5.4.2 Each Subcontractor is required to follow the provisions of 4.3.4 relating to asbestos abatement.

5.5 PAYMENTS TO SUBCONTRACTORS, SUB-SUBCONTRACTORS, AND MATERIAL SUPPLIERS AND VENDORS

5.5.1 If the Project Manager withholds a Certificate for Payment for any cause which is the fault of the Contractor and not the fault of a particular Subcontractor, Sub-subcontractor, and Material Supplier and Vendor, the Contractor shall pay that Subcontractor, Sub-subcontractor, Material Supplier and Vendor on demand, made at any time after the Certificate for Payment should otherwise have been issued, for his work to the extent completed, less any retained percentage.

5.5.2 The Contractor shall pay each Subcontractor, Sub-subcontractor, and Material Supplier and Vendor a just share of any insurance monies received by the Contractor, and he shall require each Subcontractor to make similar payments.

END OF ARTICLE 5

ARTICLE 6

WORK BY OWNER OR BY SEPARATE CONTRACTORS

6.1 OWNER'S RIGHT TO PERFORM WORK AND TO AWARD SEPARATE CONTRACTS

6.1.1 The Owner reserves the right to perform work related to the Project with his own forces, and to award separate contracts in connection with other portions of the Project or other work on the site under these or similar Conditions of the Contract.

6.1.2 When separate contracts are awarded for different portions of the Project or other work on the site, the term Contractor in the Contract Documents in each case shall mean the Contractor who executes each separate Owner-Contractor Agreement.

6.1.3 Upon transfer of such separate contracts to a General Contractor, if the Owner so desires to transfer such contracts, the Contractor shall be obligated to the conditions as outlined by Paragraph 6.3. of these Conditions.

6.2 MUTUAL RESPONSIBILITY

6.2.1 The Contractor shall afford the Owner and separate Contractors reasonable opportunity for the introduction and storage of their materials and equipment and the execution of their Work, and shall connect and coordinate his Work with theirs as required by the Contract Documents.

6.2.2 If any part of the Contractor's Work depends for proper execution or results upon the Work of the Owner or any separate contractor, the Contractor shall, prior to proceeding with the Work, promptly report to the Owner any apparent discrepancies or defects in such other work that render it unsuitable for such proper execution and results. Failure of the Contractor to so inspect and report in writing to the Owner shall constitute an acceptance of the Owner's or separate contractors' work as fit and proper to receive his Work, except as to defects which may subsequently become apparent in such work by others.

6.2.2.1 In addition to inspection as to defect, the Contractor, if so deemed necessary by the Contractor, shall measure or inventory work already in place or stored and shall at once report, in writing, to the Project Manager any conflicts between the executed Work and the Contract Documents the Contractor has signed his name thereto.

6.2.2.2 Upon notification from the Owner that a part of the Work furnished under this Contract is not in accordance with the Contract Documents, the Contractor shall immediately initiate action to correct the Work.

6.2.2.3 If the Contractor fails to install his Work in a timely manner, the Owner through the Project Manager may authorize other Contractor(s) to perform their Work out of proper sequence. All extra Work necessary to properly interface with the other Contractor(s)' Work will be accomplished by this Contractor at no additional cost to the Owner.

6.2.3 Any costs caused by defective or ill-timed work shall be borne by the Contractor.

6.2.4 Should the Contractor wrongfully cause damage to the Work or property of the Owner, or to other Work on the site, the Contractor shall promptly remedy such damage as provided in Subparagraph 10.2.5.

6.2.5 Should the Contractor wrongfully cause damage to the work or property of any separate contractor, the Contractor shall upon due notice promptly attempt to settle with such other Contractor by agreement; or otherwise to resolve the dispute. If such separate Contractor sues or initiates a proceeding against the Owner, the Project Manager and/or the Architect on account of any damage alleged to have been caused by the Contractor, the Owner shall notify the Contractor who shall defend such proceedings at his own expense, and if any judgment or award against the Owner, the Project Manager, and/or the Architect arises therefrom the Contractor shall pay or satisfy it and shall reimburse the Owner, the Project Manager and/or the Architect for all attorneys' fees and court or other costs which the Owner, the Project Manager and/or the Architect have incurred.

6.2.6 In the event there is more than one contractor engaged on the Project, each such contractor shall be responsible to the other for damages to work, injury to any person or persons, or for any loss, cost, claims, or damages arising out of or in connection with the Work required by this Contract or any loss, cost, expense, or damage caused by the Contractor's neglect or failure to finish or satisfactorily complete his part of the Work within the time prescribed. In all events, the provisions of Paragraph 4.18 shall be applicable.

6.2.7 Whenever the Contractor receives items from another Contractor or from the Owner for storage, erection or installation, the Contractor receiving such items shall give receipt for items delivered, and thereafter will be held responsible for care, storage and any necessary replacing of item or items received.

6.2.8 The separate contractors shall establish and maintain communication throughout the course of their Work to assure maximum coordination of the Work performed by each. This includes the approvals of the Work of each as required by proper coordination.

6.3 OWNER'S RIGHT TO PERFORM DISPUTED WORK

6.3.1 If a dispute arises between the Contractor and separate contractors as to their responsibility for cleaning up as required by Paragraph 4.15 or for accomplishing coordination or doing required cutting, filling, excavating or patching as required by Paragraph 4.14, the Owner may carry out such Work and charge the cost thereof to the contractors responsible therefor as the Owner shall determine to be just.

6.4 EQUIPMENT OR WORK NOT IN CONTRACT (NIC)

6.4.1 When certain items of equipment and other work are indicated as "NIC" (Not In Contract), or to be furnished and installed under other contracts, any requirements for preparation of openings, provision of backing, etc., for receipt of such "NIC" work, information will be furnished upon written request of the Contractor who shall properly form and otherwise prepare his Work in a satisfactory manner to receive such "NIC" work.

6.5 CUTTING AND PATCHING UNDER SEPARATE CONTRACTS

6.5.1 Each Contractor shall be responsible for any cutting, fitting and patching that may be required to complete his Work except as otherwise provided in the Contract Documents. The Contractor shall not endanger any human life or portion of the Work performing any cutting, excavating or otherwise altering the Work or any part thereof.

END OF ARTICLE 6

ARTICLE 7

MISCELLANEOUS PROVISIONS

7.1 GOVERNING LAW

7.1.1 Unless otherwise provided in the Contract Documents, the Contract shall be governed by the law of the place where the Project is located.

7.2 SUCCESSORS AND ASSIGNS

7.2.1 The Owner and the Contractor each binds himself, his partners, successors, assigns and legal representatives to the other party hereto and to the partners, successors, assigns and legal representatives of such other party in respect to all covenants, agreements and obligations contained in the Contract Documents. The Contractor shall not assign the Contract or sublet it as a whole without the written consent of the Owner, nor shall the Contractor assign any monies due or to become due to him hereunder, without the previous written consent of the Owner.

7.3 WRITTEN NOTICE

7.3.1 Written notice shall be deemed to have been duly served if delivered in person to the individual or member of the firm or entity or to an officer of the corporation for whom it was intended, or if delivered at or sent by registered or certified mail to the last business address known to him who gives the notice.

7.4 CLAIMS FOR DAMAGES

7.4.1 Should the Contractor suffer injury or damage to person or property because of any act or omission of the Owner or of any of his employees, agents or others for whose acts he is legally liable, claim shall be made in writing to the Owner, through the Project Manager, within twenty (20) days after the first observance of such injury or damage; otherwise, the Contractor shall have waived any and all rights he may have against the Owner, the Project Manager, the Architect, or their employees, representatives or agents.

7.4.2 Decisions of the Project Manager shall be rendered as provided for under the Contract Documents, but no decision of the Project Manager shall deprive the Owner or the Contractor of any form of redress which may be available under the laws of the State. Any decision of the Project Manager shall be final and binding on the Contractor in the absence of written notice of protest from the Contractor received by the Owner by registered mail, within fifteen (15) days of the date of the decision of the Project Manager. The Owner shall have sixty (60) days from the date of receipt of a formal protest within which to investigate and make reply.

7.5 PERFORMANCE BOND AND PAYMENT BOND

7.5.1 Prior to the execution of the Contract, the Contractor shall furnish to the Owner, on forms acceptable to the Owner, surety bonds in the amounts and for the purposes provided in this Paragraph 7.5. Each bond must be signed by both the Contractor and the Surety. The current power of attorney for the person who signs for the surety company, indicating the monetary limit of such powers, must be attached to the bonds. The Contractor shall pay all premiums and cost thereof and incidental thereto. Such bonds shall be made payable to the Owner. The surety (or sureties) shall be corporate surety(ies) licensed to transact business in Alaska and acceptable to the Owner. Each bond shall be in an amount equal to the Contract Sum. The effective date of the bond shall be on the execution date of the

contract.

7.5.2 The “Performance Bond” shall be so conditioned as to assure the faithful performance by the Contractor of all Work under said Contract, within the time limits prescribed, including any maintenance provisions, in a manner that is satisfactory and acceptable to the Owner; that all materials and workmanship supplied by him will be free from original or developed defects; and that should original or developed defects or failures appear within a period of one year from the date of final acceptance of the Work by the Owner, the Contractor shall, at his own expense, make good such defects and failures and make all replacements and adjustments required, within a reasonable time after being notified by the Owner to do so. This bond shall be maintained by the Contractor in full force and effect during the performance of the Work of the Contractor and for a period of two (2) years after the date of final acceptance of the Work by the Owner.

7.5.3 The “Payment Bond” shall be so conditioned as to inure to the benefit of persons furnishing materials for or performing labor upon the Work. This bond shall be maintained by the Contractor in full force and effect until the Work is completed and finally accepted by the Owner, and until all claims for materials, labor and subcontracts are paid.

7.5.4 Should any surety or sureties upon said bonds become insufficient or be disqualified from doing business in Alaska, the Contractor shall renew said bond or bonds with good and sufficient sureties, acceptable to the Owner, within ten (10) work days after receiving notice that the surety or sureties are insufficient and/or disqualified. Should any surety or sureties be deemed unsatisfactory at any time by the Owner, notice will be given the Contractor to that effect, and he shall forthwith substitute a new surety or sureties satisfactory to the Owner. No further payment shall be deemed due or will be made under this Contract until the new sureties shall qualify and be accepted by the Owner.

7.5.5 In the event of any change order resulting in the performance of additional work in connection with the Work, the amounts of such bonds shall be increased by the cost of such additional work or materials or fixtures to be incorporated into the Project.

7.6 RIGHTS AND REMEDIES

7.6.1 The Contractor’s duties and obligations imposed by the Contract Documents and the rights and remedies available thereunder shall be in addition to and not a limitation of any duties, obligations, rights and remedies otherwise imposed or available by law.

7.6.2 Except as may be specifically agreed in writing, the failure of the Owner, the Project Manager, or the Architect to insist in any one or more instances upon the strict performance of any one or more of the provisions of this Contract, or to exercise any right herein contained or provided by law, shall not be construed as a waiver or relinquishment of the performance of such provision or right(s) or of the right to subsequently demand such strict performance or exercise such right(s), and the rights shall continue unchanged and remain in full force and effect.

7.6.3 The Contractor agrees that he can be adequately compensated by money damages for any breach of this Contract which may be committed by the Owner and hereby agrees that no default, act, or omission of the Owner, the Project Manager or the Architect, except for unauthorized failure to make payments as required by the Contract Documents, shall constitute a material breach of the Contract entitling the Contractor to cancel or rescind the provisions of this Contract or (unless the Owner shall so consent or direct in writing) to suspend or abandon performance of all or any part of the Work. The Contractor hereby waives any and all rights and remedies to which he might otherwise be or become entitled, save only his right to money damages.

7.7 TESTS

7.7.1 If the Contract Documents, laws, ordinances, rules, regulations or orders of any public authority having jurisdiction require any portion of the Work to be inspected, tested, or approved, the Contractor shall give the Architect and Project Manager timely notice, but not less than seventy-two (72) hours, of its readiness so the Architect and the Project Manager may observe such inspection, testing or approval. The Contractor shall bear all costs of such inspections, tests or approvals except as provided in subparagraph 7.7.2. Notification, coordination and execution of all inspections and tests required by the Contract Documents or by the governing building department shall be the sole responsibility of the Contractor. The Owner shall not be responsible for any damage or delay caused by any Party's inability to make required inspections in the time frame desired by the Contractor.

7.7.2 Special Inspection and testing as required in accordance with IBC section 1704 shall be coordinated by the Contractor and the Owner shall bear all costs of Special Inspections or approvals. The Special Inspector, designated by the Owner, shall observe the Work assigned for conformance with the approved design drawings and specifications. The Project Manager may order additional Special Inspections, testing, or approval, as required by the authority having jurisdiction by providing notice to the Contractor. The Contractor shall provide notification and coordination for additional Special Inspections as provided in subparagraph 7.7.1. If such special inspection or testing reveals a failure of the Work to comply (1) with the requirements of the Contract Documents, or (2) with respect to the performance of the Work, with laws, ordinances, rules, regulations, or orders of any public authority having jurisdiction, the Contractor shall bear all costs thereof, including compensation of the Owner's administrative and legal expenses, and for the Architect's, the Project Manager's, and the Special Inspector's additional services made necessary by such failure.

7.7.3 Inspections and Tests required to establish compliance with the Contract Documents, as provided for in the Contract Documents, will be made by a qualified, independent testing agency approved by the Owner. The cost of the services of such agency will be paid by the Contractor, unless otherwise provided in the Contract Documents. When the initial tests indicate non-compliance with the Contract Documents, any subsequent retesting occasioned by non-compliance shall be performed by the same agency and the costs thereof borne by the Contractor. The Contractor shall provide facilities for such access to the Work in order that the agency may properly perform its functions. Representatives of the testing agency shall have access to the Architect, Project Manager, or Owner at all times.

7.7.4 Inspections or testing performed exclusively for the Contractor's convenience shall be the sole cost and responsibility of the Contractor.

7.7.5 The independent testing agency, employed as specified in the Technical portion of these specifications, shall prepare the test reports, logs, and certificates applicable to the specific inspections and tests and shall deliver, immediately or within forty-eight (48) hours, as applicable, the specified number of copies of same to the designated parties. Other required certificates of inspection, testing or approval shall be secured by the Contractor and delivered by him to the Project Manager and the Architect, in such time as to not delay progress of the Work or final payment therefor.

7.7.6 If the Architect, the Project Manager or the Special Inspector is to observe the inspections, tests or approvals required by the Contract Documents, laws, ordinances, rules, regulations, or orders of any public authority having jurisdiction or that are required to establish compliance with the Contract Documents, he will do so promptly and, where

practicable, at the normal place of testing.

7.7.7 Unless otherwise stipulated in the Contract Documents, the Contractor shall pay for all utilities required for testing of installed equipment of all of his Work and work of each Subcontractor furnishing equipment. Labor and supervision required for making such tests shall be provided at no additional cost to the Owner.

7.7.8 Owner may provide Quality Assurance testing. Contractor shall provide knowledgeable support personnel and cooperate fully with Owner's designated representative in conducting all Quality Assurance tests. If project fails tests, Contractor shall make all necessary corrections to meet test criteria and pay the Owner for all costs associated with additional tests.

7.8 ALTERNATES

7.8.1 Alternates may be either additive or deductive.

7.8.2 Alternates, if taken, may be taken in any sequence.

7.8.3 The Contractor shall include in his bid, or bid proposal, a bid for all alternates listed in the Bid Form. These alternates shall include the Contractor's net cost of the labor, materials, overhead and profit, and equipment necessary to perform or delete, the Work as outlined by such alternates.

7.9 UNENFORCEABILITY OF ANY PROVISION

7.9.1 If any provision of the Contract is held as a matter of law to be unenforceable, the remainder of the Contract shall be enforceable without such provision.

7.10 NO WAIVER BY OWNER

7.10.1 The failure of the Owner in any one or more instances to insist upon the strict performance of any of the terms of this Contract or to exercise any option herein conferred, shall not be construed as a waiver or relinquishment to any extent of the right to assert or rely upon such terms or option on any future occasion.

7.11 ASSIGNMENT OF CONTRACT

7.11.1 The Contractor shall not assign the responsibilities of this Contract, either as a whole or in part, nor assign any monies due or to become due to it hereunder, without previous written consent of the Owner.

END OF ARTICLE 7

ARTICLE 8

TIME

8.1 DEFINITIONS

8.1.1 Unless otherwise provided, the Contract Time is the period of time allotted in the Contract Documents for Substantial and Final Completion of the Work as defined in Subparagraph 8.1.3, including authorized adjustments thereto.

8.1.2 The date of execution of the Contract Agreement between the Owner and Contractor shall be subsequent to School Board Approval and the Contractor's satisfactory submittals to the Owner of the Certificate of Insurance, the Performance Bond and the Payment Bond as noted in the Invitation to Bidders. The Owner will issue a Notice to Proceed no later than ten (10) days from execution of the Owner-Contractor Agreement by both Owner and Contractor. The date of commencement of the Work shall be the date established by the Notice to Proceed. The Owner shall not be responsible for any costs incurred by the Contractor prior to the Notice to Proceed.

8.1.3 The Date of Substantial Completion of the Work or designated portion thereof is the Date certified by the Project Manager and Architect when the Work or a designated portion thereof is sufficiently complete, in accordance with the Contract Documents, so the Owner can fully occupy and utilize the Work or designated portion thereof for the use for which it is intended, with all of the Project's parts and systems cleaned and operable as required by the Contract Documents. Only incidental corrective work and any final cleaning beyond that needed for the Owner's full use may remain for Final Completion.

8.1.4 The term day as used in the Contract Documents shall mean calendar day unless otherwise specifically designated. All dates shall mean 12:01 a.m. of the indicated day unless otherwise stipulated.

8.1.5 The term "working day" as may be used in the Contract Documents shall mean any day not otherwise defined herein as a non-working day.

8.1.6 The term non-working day as may be used in the Contract Documents shall mean Sunday, a recognized holiday, a day on which the Contractor is specifically required to suspend construction operations or a day on which a suspension order is in effect. Recognized holidays shall be: New Year's Day, Independence Day, Labor Day, Veteran's Day, Thanksgiving Day, Christmas Eve (half day), and Christmas Day. When any of the above days fall on a Saturday, the preceding Friday shall be counted as a holiday. When any of the above days fall on a Sunday, the following Monday shall be counted as a holiday.

8.1.7 The term "Beneficial Occupancy" is interchangeable with the term Substantial Completion.

8.2 PROGRESS AND COMPLETION

8.2.1 All times stated in the Contract Documents are of the essence of the Contract.

8.2.2 The Contractor shall begin the Work on the date of commencement as defined in Subparagraph 8.1.2. He shall carry the Work forward expeditiously with adequate forces and shall achieve Substantial Completion and Final Completion in accordance with the Project Schedule Milestone Dates set forth under Section 00200 hereof.

8.2.3 Attention is directed to the fact that the Work is urgently needed by the Owner and that time is of the essence; for this reason, it shall be agreed that the Contractor shall

substantially complete all Work under the Contract in accordance with the Project Schedule Milestone Dates set forth under Section 00200 hereof and, that he will complete the contract in all its details for final acceptance as specified after Substantial Completion.

8.3 DELAYS AND EXTENSIONS OF TIME

8.3.1 The Contractor shall be entitled to extensions in the time required for performance of the Work as specifically provided in the Contract. Except as otherwise specifically provided under Paragraph 3.4., 12.1, or 8.3.5, the Contractor shall not be entitled to payment or compensation of any kind from the Owner for direct, indirect, impact or consequential damages, including but not limited to costs of acceleration because of hindrance or delay or loss of labor or equipment efficiency or productivity arising out of any hindrance, interference, obstruction, disruption or delay from any source or cause whatsoever, whether such hindrance, interference, obstruction, disruption or delays be reasonable or unreasonable, foreseeable or unforeseeable, or avoidable or unavoidable.

8.3.2 The Contract Time may be adjusted only for changes pursuant to Paragraph 12.1, suspension of Work pursuant to Paragraph 3.4. and delays pursuant to Subparagraph 8.3.3.

8.3.3 Types of delay shall be defined as follows:

8.3.3.1 Actions or inactions of the Owner, or events for which the Owner has assumed contractual responsibility, which would independently delay the date of Substantial Completion beyond the current contractually established date of Substantial Completion shall be designated as Compensable delays.

8.3.3.2 Events which are outside the control of, and without the fault or negligence of either the Owner or the Contractor, which would independently delay the date of Substantial Completion beyond the current Contract Completion Date shall be designated as Excusable delays, as follows:

8.3.3.2.1 Labor disputes and strikes (including strikes affecting transportation), that do, directly and critically affect the progress of the Work; however, any extension of Contract Time on account of an individual labor strike shall not exceed the number of days of said strike.

8.3.3.2.2 Acts of God, tornado, fire, hurricane, blizzard, earthquake, typhoon, or flood that damage completed work or stored materials.

8.3.3.2.3 The Contract Time will not be extended due to normal inclement weather. Unless the Contractor can substantiate to the satisfaction of the Owner that the weather actually encountered by the Contractor was unusually severe considering the full term of the Contract Time using a ten (10) year average of accumulated record mean values from climatological data compiled by the U.S. Department of Commerce, National Oceanic and Atmospheric Administration for the locale of the Project and that such alleged substantially greater than normal inclement weather actually delayed the Work or portions thereof which had an effect upon the Contract Time, the Contractor shall not be entitled to an extension of time.

8.3.3.2.4 Acts of the public enemy, acts of the state, federal or local government in its sovereign capacity, and acts of another contractor in the performance of a contract with the Owner relating to the Project.

8.3.3.3 Actions or inactions of the Contractor, or events for which the Contractor has assumed contractual responsibility, which would independently delay the date of Substantial Completion beyond the current Contract Completion Date shall be designated as Non-excusable delays.

8.3.3.4 Concurrent delay is any combination of the above three types of delay occurring on a calendar date, except in cases where the combination consists of two or more instances of the same type of delay occurring on a calendar date.

A delay to the Contractor caused by the acts of another contractor under contract to the Owner will be classified as a compensable delay to the extent said delay meets the requirements of compensable delay as set forth under Subparagraph 8.3.3.1. Also, it is the Owner's belief that the definitions of delay as included in this paragraph comply with all applicable law in the State of Alaska.

8.3.4 Any claim for extension of time shall be made in writing to the Project Manager not more than seven (7) calendar days after commencement of the delay; otherwise it shall be waived. The Contractor shall also provide an estimate of the probable effect of such delay on the progress of the Work. In the case of a continuing delay only one claim is necessary. Any event, action, inaction, or other cause which may give rise to a delay shall constitute a basis for adjustment in:

8.3.4.1 Contract Time, only if it can be demonstrated that the date of Substantial Completion will be delayed beyond the current Contract Completion Date and that the delay is classified as only a Compensable, Excusable, or Concurrent Delay. The Contract Time shall be adjusted by Change Order pursuant to the requirements of Paragraph 8.3 and Division 1, Section 01311; or

8.3.4.2 Contract Amount, only if it can be demonstrated that the Contractor's time-related costs to complete the Work will be increased and the delay is classified as only a Compensable Delay. The Contract Sum shall be adjusted by Change Order pursuant to the requirements of Subparagraphs 8.3 and 12.3.

8.3.5 All time limits stated in the Contract Documents are of the essence of this Contract. The failure of the Contractor to complete the Work in conformance with the Contract shall result in damages suffered by the Owner due to delays in completion of the Work.

8.3.5.1 If the Contractor fails to substantially complete the Work in conformance with the Contract Documents and the Owner nevertheless permits the Contractor to continue performance of the Work, such permission shall neither modify nor waive the Owner's right to assess and collect, and the Contractor's obligation to pay liquidated damages.

8.3.5.2 The Owner shall be entitled to claim against the Contractor for any liquidated damages incurred. The Owner cannot anticipate at this time what liquidated damages may occur or what the per diem cost of these damages might be. Determination of liquidated damage details will be a matter of proof should the issue arise.

8.3.5.3 The Owner shall recover said liquidated damages by deducting the amount thereof from any monies due or that may become due the Contractor. In the event the remaining balance due the Contractor is insufficient to cover the full amount of assessed damages, then the Contractor or his Surety shall pay the amount due and the Owner shall be entitled to any and all rights and remedies available to it in law or equity to recover same.

8.4 RESPONSIBILITY FOR COMPLETION

8.4.1 The Contractor shall furnish such manpower, materials, facilities and equipment and shall work such hours, including night shifts, overtime operations and Sundays and holidays, as may be necessary to insure the progress and completion of the Work in accordance with the accepted and currently updated progress schedule. If Work actually in place falls behind the currently updated and accepted progress schedule and it becomes apparent from the current schedule that the Work will not be completed in accordance with the Contract Time, the Contractor agrees that he will, as necessary, take some or all of the following actions at no additional cost to the Owner, as required to substantially eliminate the schedule slippage deficiency:

8.4.1.1 Increase manpower in such quantities and crafts as will substantially eliminate in the opinion of the Project Manager the schedule slippage deficiency;

8.4.1.2 Increase the number of working hours per shift, shifts per working day, working days per week, or the amount of equipment, or any combination of the foregoing sufficiently to substantially eliminate, in the opinion of the Project Manager the schedule slippage deficiency; and,

8.4.1.3 Reschedule activities to achieve maximum practical concurrence of accomplishment of activities.

8.4.2 The Project Manager may require the Contractor to submit a recovery schedule in accordance with Section 01311 of the Specifications, demonstrating his program and proposed plan to make up the slippage in scheduled progress and to ensure completion of the Work in accordance with the requirements of the Contract. If the Project Manager finds the proposed plan not acceptable, he may require the Contractor to submit a new plan. If the actions taken by the Contractor or the second plan proposed are not satisfactory, the Project Manager may require the Contractor to take any of the actions set forth in this Paragraph 8.4 without additional cost to the Owner, to make up the slippage in scheduled progress.

8.4.3 Failure of the Contractor to substantially comply with the requirements of this Paragraph 8.4 may be considered grounds for a determination by the Owner, pursuant to Clause 14.1, that the Contractor is failing to prosecute the Work with sufficient diligence to ensure its in accordance with the Project Milestone Dates set forth under Section 00200 hereof.

END OF ARTICLE 8

ARTICLE 9

PAYMENTS AND COMPLETION

9.1 CONTRACT SUM

9.1.1 The Contract Sum is stated in the Owner-Contractor Agreement and, including authorized adjustments thereto, is the total amount payable by the Owner to the Contractor for the performance of the Work under the Contract Documents.

9.2 SCHEDULE OF VALUES

9.2.1 Before the first Application for Payment, the Contractor shall submit to the Owner, through the Project Manager, a schedule of values allocated to the various portions of the Work, as set forth in Division 1, Section 01370 of the General Requirements entitled “Schedule of Values” and supported by such data to substantiate its accuracy as the Architect, Project Manager and the Owner may require. This schedule, unless objected to by the Architect, Owner, or Project Manager, may be used as a basis for the Contractor’s Applications for Payment except as otherwise noted under Division 1, Section 01311. The Schedule of Values shall be prepared in such a manner that each major item of work and each subcontracted item of work is shown as a single item on the Application and Certificate of Payment.

9.3 APPLICATIONS FOR PAYMENT

9.3.1 Prior to the date for each progress payment established in the Contract Documents, the Contractor, in accordance with Division 1, Section 01311 of the General Requirements entitled “Project Schedule,” shall submit to the Project Manager an itemized Application for Payment, notarized if required, supported by such data substantiating the Contractor’s right to payment as the Project Manager and the Architect may require, and reflecting retainage, if any, as provided elsewhere in the Contract Documents. The form of Application for Payment shall be Anchorage School District Forms 100, 100A, 100B and 100C and the computer-produced Cost Report updated in accordance with Division 1, Section 01311.

9.3.2 If the Project Manager finds that satisfactory progress is not being made, he may require retainage of up to 10% of the total amount earned on all subsequent progress payments. This retainage may be released at such time as the Project Manager finds that satisfactory progress is being made.

9.3.3 Payments may be authorized by the Project Manager at his discretion, on account of materials or equipment not incorporated in the Work but delivered and suitably stored at the site by the Contractor. Payments for materials or equipment stored on the site shall only be considered upon submission by the Contractor of satisfactory evidence that he has acquired title to such material, that it will be utilized on the Work under this Contract and that it is satisfactorily stored, protected, and insured or that other procedures satisfactory to the Project Manager that will protect the Owner’s interests have been taken.

9.3.4 The Contractor warrants that title to all Work, materials and equipment covered by an Application for Payment will pass to the Owner either by incorporation in the construction or upon the receipt of payment by the Contractor, whichever occurs first, free and clear of all liens, claims, security interests or encumbrances, hereinafter referred to in this Article 9 as “liens”; and that no Work, materials or equipment covered by an Application for Payment will have been acquired by the Contractor, or by any other person performing Work at the site or furnishing materials and equipment for the Project, subject to an agreement under which an interest therein or an encumbrance thereon is retained by the seller or otherwise

imposed by the Contractor or such other person.

9.4 APPROVAL OF PAY APPLICATION

9.4.1 The Project Manager will, after receipt of the Contractor's Application for Payment, and within the time set forth in Division 1, Section 01311 of the General Requirements entitled "Project Schedule," either approve the Application for its full amount or notify the Contractor in writing of his reasons for withholding approval, in whole or in part, as provided in Subparagraph 9.6.1.

9.4.2 The submission and acceptance of the Contractor's Preliminary and Detailed Progress Schedules and monthly updates thereof as required by Division 1, Section 01311 of the General Requirements entitled "Project Schedule," shall be an integral part and basic element of the application upon which progress payments shall be made. If in the judgment of the Project Manager the Contractor fails or refuses to provide information required to accomplish a complete Project Schedule Update or revision thereto as specified under Division 1, Section 01311 of the General Requirements, the Contractor shall be deemed to have not provided the information necessary to enable the Project Manager and the Architect to properly evaluate the Contractor's progress, and shall not be entitled to progress payments until it has furnished the information necessary for a complete Project Schedule Update or revision thereto as specified herein to the satisfaction of the Project Manager.

9.4.3 The signing of an Application for Payment will constitute a representation by the Project Manager and the Architect, based on their observations at the site and the data comprising the Application for Payment, that the Work has progressed to the point indicated; that, to the best of their knowledge, information and belief, the quality of the Work is in accordance with the Contract Documents (subject to an evaluation of the Work for conformance with the Contract Documents upon Substantial Completion, to the results of any subsequent tests required by or performed under the Contract Documents, to minor deviations from the Contract Documents correctable prior to completion, and to any specific qualifications stated in their Certificate); and that the Contractor is entitled to payment in the amount certified. However, by approving an Application for Payment, the Project Manager and the Architect shall not thereby be deemed to represent that either has made exhaustive or continuous on-site inspections to check the quality or quantity of the Work or that either has reviewed the construction means, methods, techniques, sequences or procedures, or that either has made an examination to ascertain how or for what purpose the Contractor has used the monies previously paid on account of the Contract Sum.

9.5 PROGRESS PAYMENTS

9.5.1 After an Application for Payment has been approved, the Owner shall make payment within thirty (30) calendar days.

9.5.2 The Contractor shall promptly pay each Subcontractor (including suppliers, laborers, and material-men) performing labor or furnishing material for the Work, upon receipt of payment from the Owner, out of the amount paid to the Contractor on account of such Subcontractor's Work, the amount to which said Subcontractor is entitled, reflecting the percentage actually retained, if any, from payments to the Contractor on account of such Subcontractor's Work. The Contractor shall, by an appropriate agreement with each Subcontractor, also require each Subcontractor to make payments to his Sub-subcontractors in similar manner.

9.5.3 The Owner may, on request and at his discretion, furnish to any Subcontractor, Sub-subcontractor, or Material Supplier and Vendor, if practicable information regarding the

percentages of completion or the amounts applied for by the Contractor and the action taken thereon by the Project Manager on account of Work done by such Subcontractor, Sub-subcontractor, or Material Supplier or Vendor.

9.5.4 Neither the Owner, the Project Manager, nor the Architect shall have any obligation to pay or to see to the payment of any monies to any Subcontractor except as may otherwise be required by law.

9.5.5 No approval for a progress payment, nor any progress payment, nor any partial or entire use of occupancy of the Project by the Owner, shall constitute an acceptance of any Work not in accordance with the Contract Documents.

9.5.6 The Contractor agrees to keep the Work and the site(s) on which Work is to be performed free and clear of all liens and claims of liens on materials furnished pursuant to the Contract Documents. Contractor hereby waives any right it may have in connection with the Work to file any liens, mechanics or otherwise. Notwithstanding anything to the contrary contained in the Contract Documents, if any such lien is filed or there is any reason to believe that any lien may be filed at any time during the progress of the Work or within the duration of this Contract, the Owner may refuse to make any payment otherwise due to Contractor or withhold from any payment due the Contractor a sum sufficient in the opinion of the Owner to pay all obligations and expenses necessary to satisfy such lien or claim and completely indemnify the Owner against any such lien or claim unless and until Contractor shall thereof, if any, has been satisfied, discharged and released of record or that the Contractor has caused such lien to be released or record if and as provided by law pending the resolution of any dispute between Contractor and the person filing such lien; and if such evidence is not furnished by Contractor to the Owner within a period of five (5) days after demand to do so, the Owner may discharge such indebtedness and deduct the amount required therefore, together with any and all losses, costs, damages and attorney's fees suffered or incurred by the Owner from any sum payable to Contractor under the Contract Documents. Final payment to Contractor may be withheld until the Work and the site(s) on which the Work is to be performed are free and clear of any and all liens for rights thereto arising because of Work performed or materials furnished under the Contract Documents. This Subparagraph 9.5.6 shall be specifically included in all subcontracts and purchase orders entered into by Contractor.

9.5.7 No reference to a claim or claims of lien or to the Owner's right to withhold payments to the Contractor or to discharge the Contractor's debts to Subcontractors, in Subparagraph 9.5.6, or elsewhere in the Contract Documents, shall be interpreted as a waiver of the Owner's right to exemption pursuant to AS 09.38.015(c) or any requirements with regard to the filing of claims of lien as set forth in AS 34.35.

9.6 PAYMENTS WITHHELD

9.6.1 The Architect and the Project Manager may decline to approve an Application for Payment in whole or in part, to the extent reasonably necessary to protect the Owner, if in their opinion they are unable to make representations to the Owner as provided in Subparagraph 9.4.3. If the Project Manager and the Architect are unable to make representations to the Owner as provided in Subparagraph 9.4.3 and to certify payment in the amount of the Application, they will notify the Contractor as provided in Subparagraph 9.4.1.

If the Contractor, Project Manager and the Architect cannot agree on a revised amount, the Project Manager will promptly approve the Application for Payment for the amount for which he is able to make such representations to the Owner. The Project Manager may also decline to certify payment or, because of subsequently discovered evidence or

subsequent observations, he may nullify the whole or any part of any approval of an Application for Payment previously issued to such extent as may be necessary in his opinion to protect the Owner from loss because of:

9.6.1.1 Defective work not remedied,

9.6.1.2 Third-party claims filed or reasonable evidence indicating probable filing of such claims,

9.6.1.3 Failure of the Contractor to make payments properly to Subcontractors or for labor, materials or equipment,

9.6.1.4 Reasonable evidence that the Work cannot be completed for the unpaid balance of the Contract Sum,

9.6.1.5 Damage to the Owner or another contractor,

9.6.1.6 Reasonable evidence that the Work will not be completed within the Contract Time,

9.6.1.7 Failure or refusal of the Contractor to carry out the Work in accordance with the Contract Documents, including scheduling, project management, or coordination requirements,

9.6.1.8 Liens filed for any portion of the Work, or

9.6.1.9 Failure or refusal of the Contractor to fully comply with Division 1, Section 01311 of the General Requirements entitled “Schedules and Reports”.

9.6.2 When the above grounds in Subparagraph 9.6.1 are removed, payment shall be made for amounts withheld because of them.

9.7 FAILURE OF PAYMENT

9.7.1 If the Owner does not pay the Contractor within seven (7) days after the date established in the Contract Documents any amount certified by the Architect and the Project Manager, then the Contractor may, upon seven (7) additional days’ written notice to the Owner and the Architect, stop the Work until payment of the amount not in dispute has been received. The Contractor shall not refuse or fail to diligently proceed with the Work pending the resolution of any amount(s) in dispute unless agreed to by the Owner.

9.8 SUBSTANTIAL COMPLETION

9.8.1 When the Contractor considers that the Work, or a designated portion thereof which is acceptable to the Owner, is substantially complete as defined in Subparagraph 8.1.3, the Contractor shall prepare for submission to the Project Manager a list of items to be completed or corrected. The failure to include any items on such list does not alter the responsibility of the Contractor to complete all Work in accordance with the Contract Documents. When the Architect and the Project Manager on the basis of an inspection jointly determine that the Work or designated portion thereof is substantially complete, the Architect will then prepare a Certificate of Substantial Completion which shall establish the Date of Substantial Completion, shall state the responsibilities of the Owner and the Contractor for security, maintenance, heat, utilities, correction of punchlist items and damage to the Work, and insurance, and shall fix the time within which the Contractor shall complete the items listed therein. Warranties required by the Contract Documents shall

commence on the Date of Substantial Completion of the work or designated portion thereof unless otherwise provided in the Certificate of Substantial Completion. The Certificate of Substantial Completion shall be submitted to the Owner and the Contractor for their written acceptance of the responsibilities assigned to them in such Certificate.

9.8.2 Upon Substantial Completion of the Work or designated portion thereof and upon application by the Contractor and certification by the Project Manager and the Architect, the Owner shall make payment, reflecting adjustment in retainage, if any, for such Work or portion thereof, as provided in the Contract Documents.

9.8.3 The acceptance of Substantial Completion payment shall constitute a waiver of all claims by the Contractor except those previously made in writing and identified by the Contractor as unsettled at the time of the Application for Payment for Substantial Completion, and except for the retainage sums due at final acceptance if any.

9.9 FINAL COMPLETION AND FINAL PAYMENT

9.9.1 Upon receipt of written notice that the Work is ready for final inspection and acceptance and upon receipt of a final Application for Payment, the Architect and the Project Manager will promptly make such inspection and, when they find the Work acceptable under the Contract Documents and the Contract fully performed, they will jointly issue a final Certificate for Payment stating that to the best of their knowledge, information and belief, and on the basis of their observations and inspections, the Work has been completed in accordance with the terms and conditions of the Contract Documents and that the entire balance found to be due the Contractor, as noted in said final Certificate, is due and payable. The final Certificate for Payment will constitute a further representation that the conditions precedent to the Contractor's being entitled to final payment as set forth in Subparagraph 9.8.2 have been fulfilled.

9.9.2 Neither the final payment nor the remaining retained percentage shall become due until the Work is free and clear of any and all liens and the Contractor submits to the Owner (1) an affidavit that all payrolls, bills for materials and equipment, and other indebtedness connected with the Work for which the Owner or his property might in any way be responsible, have been paid or otherwise satisfied, (2) consent of surety, if any, to final payment and (3), if required by the Project Manager, other data establishing payment or satisfaction of all such obligations, such as receipts, releases and waivers of liens arising out of the Contract, to the extent and in such form as may be designated by the Project Manager. If any Subcontractor refuses to furnish a release or waiver required by the Owner, the Contractor may furnish a bond satisfactory to the Owner to indemnify him against any loss. If any such lien or claim remains unsatisfied after all payments are made, the Contractor shall refund to the Owner all monies that the latter may be compelled to pay in discharging such lien or claim, including all costs and reasonable attorney's fees. The Owner may withhold from the final payment any sum that the Owner has reason to believe may be needed to satisfy any lien, claim or threat of lien arising from the Work. The Owner may deduct from the final payment an amount equal to any costs, expenses and attorneys' fees incurred by the Owner in removing or discharging any liens arising from the Work.

9.9.3 If, after Substantial Completion of the Work, final completion thereof is materially delayed through no fault of the Contractor, or by the issuance of change orders affecting final completion, and the Owner so confirms, the Owner shall, upon application by the Contractor and certification by the Project Manager and the Architect, and without terminating the Contract, make payment of the balance due for that portion of the Work fully completed and accepted. If the remaining balance for Work not fully completed or corrected is less than the retainage stipulated in the Contract Documents, and if bonds have been furnished as provided in Paragraph 7.5, the written consent of the surety to the

payment of the balance due for that portion of the Work fully completed and accepted shall be submitted by the Contractor to the Project Manager prior to certification of such payment. Such payment shall be made under the terms and conditions governing final payment, except that it shall not constitute a waiver of claims.

9.9.4 The making of final payment shall constitute a waiver of all claims by the Owner against the Contractor except those arising from:

9.9.4.1 Unsettled liens, and claims against the Owner, the Project Manager, or the Architect, or their employees, agents, or representatives,

9.9.4.2 Faulty or defective Work appearing after Substantial Completion,

9.9.4.3 Failure of the Work to comply with the requirements of the Contract Documents,

9.9.4.4 Terms of any warranties contained in or required by the Contract Documents,

9.9.4.5 Liquidated damages due the Owner for the Contractor's delay in completion, or

9.9.4.6 Damages incurred by the Owner resulting from lawsuits brought against the Owner, the Project Manager, the Architect, or their agents, employees or representatives because of failures or actions on the part of the Contractor, his Subcontractors, Sub-subcontractors, Material Suppliers and Vendors, or any of their employees, agents or representatives.

9.9.5 The acceptance of final payment shall constitute a waiver of all claims by the Contractor except those previously made in writing and identified by the Contractor as unsettled at the time of the final Application for Payment.

9.9.6 Final Completion includes, but is not limited to, the Contractor obtaining an unconditional Certificate of Occupancy from the governing building official.

9.10 OWNER'S RIGHT TO OCCUPY INCOMPLETE WORK

9.10.1 Should the Project, or any portion thereof, be incomplete for Beneficial Occupancy or Final Completion at the scheduled date or dates, the Owner shall have the right to occupy any portion of the Project. In such an event, the Contractor shall not be entitled to any extra compensation on account of said occupancy by the Owner or by the Owner's normal full use of the Project, nor shall the Contractor interfere in any way with said normal full use of the Project. Further, in such an event, the Contractor shall not be entitled to any extra compensation on account of the Owner's occupancy and use of the Project, nor shall the Contractor be relieved of any responsibilities of the Contract including the required times of completion. Such occupancy by the Owner would not, in itself, constitute Beneficial Occupancy nor Final Completion.

9.10.2 If the Owner exercises his rights under the foregoing and occupies the full project, then there shall be no liquidated damages due to delay on account of failure on the Contractor's part to provide Beneficial Occupancy from that date forward. This provision does not affect, however, any damages due to delay that would be assessed for any period of time between the scheduled date of Beneficial Occupancy and the date of any such actual occupancy. Further, this provision would have no effect on actual damages assessed on account of late Final Completion.

9.11 RETENTION AND INSPECTION OF RECORDS

9.11.1 Inspection.

The Anchorage School District, or any of its duty authorized representatives, shall have the right to examine all project records and documents, including without limitation, all books, correspondence, reports, analyses, instructions drawings, receipts, vouchers, memoranda, and all financial and accounting books, records, and data and all other documents of both the Contractor and the Contractors, Subcontractors and any Sub-subcontractors which are directly pertinent to this specific Contract for the purpose of making an audit, examination, reproduction, excerpts, or transcriptions. All required records shall be retained by the Contractor and its first tier Subcontractors for three (3) years after the Owner makes final payments and all other pending matters are closed.

9.11.2 Retention and Maintenance.

The Contractor shall keep and maintain in safe condition full and accurate records of all costs incurred and items billed and all other project records and documents relating to performance, communications, and correspondence in connection with the performance of the Work under this Contract, which records and documents shall be open to review, examination or audit by the Owner or its authorized representatives during performance of the Work and until three (3) years after Final Payment and all other pending matters are closed.

9.11.3 Subcontractor Records.

The Contractor shall make it a condition of all subcontracts and sub-subcontracts relating to the Work under this Contract that any and all Subcontractors and sub-subcontractors will keep accurate records of costs incurred and items billed in connection with their work and that such records shall be open to review, examination, reproduction or audit by the Owner or its authorized representatives during performance of the Work and until three (3) years after Final Payment under the subcontract and all other pending matters are closed.

9.11.4 Availability.

The Contractor shall make available at its business office upon request at all reasonable times the materials described in this Article including materials of both the Contractor and its first tier Subcontractors, for review, examination reproduction or audit for a period of three (3) years after Final Payment under this Contract and all other pending matters are closed.

9.11.5 Termination.

If this Contract is completely or partially terminated, the records relating to the Work terminated shall be made available for three (3) years after any resulting final termination settlement.

9.11.6 Claims and Appeals.

Records pertaining to any settlement, mediation, arbitration, litigation or appeals of claim submitted pursuant to Paragraphs 12.4 or 12.5 or otherwise arising from or relating to the performance of Work under this Contract shall be made available until such settlement, mediation, arbitration, litigation, or appeals are finally concluded. Such documents or records shall be made available to the Anchorage School District or its duty authorized representatives within thirty (30) days of the Anchorage School District's request.

9.11.7 Subcontracts.

The Contractor shall include the provisions of this Article in all first tier Subcontracts so as to be binding on all first tier Subcontractors.

9.11.8 Cost or Pricing Data.

If the Contractor has submitted cost or pricing data in connection with the pricing of any change order or modification to this Contract - unless the pricing was based on–

9.11.8.1 adequate price competition, or
9.11.8.2 established catalog or market price of commercial items sold in substantial quantities to the general public; or
9.11.8.3 prices set by law or regulation -

the Anchorage School District or a representative who is an employee of the Anchorage School District, shall have the right to examine and audit all books, records, documents, and other data of the Contractor, including computations and projections, related to negotiating, pricing, or performing the change order or modification, in order to evaluate the accuracy, completeness, and currency of the cost or pricing data.

END OF ARTICLE 9

ARTICLE 10

PROTECTION OF PERSONS AND PROPERTY

10.1 SAFETY PRECAUTIONS AND PROGRAMS

10.1.1 The Owner, the Project Manager, the Architect, or their agents, employees or representatives are not responsible for the means, methods, techniques, sequences or procedures utilized by the Contractor, or for safety precautions and programs in accordance with the Work. The Contractor shall be responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the Work.

10.2 SAFETY OF PERSONS AND PROPERTY

10.2.1 The Contractor shall take all reasonable precautions for the safety of, and shall provide all reasonable protection to prevent damage, injury or loss to:

10.2.1.1 All employees on the Work and all other persons who may be affected thereby;

10.2.1.2 All the Work and all materials and equipment to be incorporated therein, whether in storage on or off the site, under the care, custody or control of the Contractor or any of his Subcontractors or Sub-subcontractors; and

10.2.1.3 Other property at the site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures and utilities not designated for removal, relocation or replacement in the course of construction.

10.2.2 The Contractor shall give all notices and comply with all applicable laws, ordinances, rules, regulations and lawful orders of any public authority bearing on the safety of persons or property or their protection from damage, injury or loss.

10.2.2.1 The Contractor shall contact the State Historic Preservation Office (907-269-8700) immediately, should cultural or paleontological resources be discovered as a result of performing the Work.

10.2.3 The Contractor shall erect and maintain, as required by existing conditions and progress of the Work, all reasonable safeguards for safety and protection, including posting danger signs and other warnings against hazards, promulgating safety regulations and notifying owners and users of adjacent utilities.

10.2.4 When the use or storage of explosives or other hazardous materials or equipment is necessary for the execution of the Work, the Contractor shall exercise the utmost care and shall carry on such activities under the supervision of properly qualified personnel.

10.2.5 The Contractor shall promptly remedy all damage or loss to any property referred to in paragraphs 10.2.1.2 and 10.2.1.3 caused in whole or in part by the Contractor, any Subcontractor, any Sub-subcontractor, any Material Supplier or Vendor, or anyone directly or indirectly employed by any of them, or by anyone for whose acts any of them may be liable and for which the Contractor is responsible under paragraphs 10.2.1.2 and 10.2.1.3, except damage or loss attributable to the acts or omissions of the Owner, Project Manager or Architect or anyone directly or indirectly employed by either of them, or by anyone for whose acts either of them may be liable, and not attributable to the fault or negligence of the Contractor. The foregoing obligations of the Contractor are in addition to his obligations under Paragraph 4.18.

10.2.6 The Contractor shall designate a responsible member of his organization at the site whose duty shall be the prevention of accidents. This person shall be the Contractor's superintendent unless otherwise designated by the Contractor in writing to the Owner through the Project Manager.

10.2.7 The Contractor shall not load or permit any part of the Work to be loaded so as to endanger its safety.

10.2.8 Following the Notice to Proceed, the Contractor is required to obtain facility keys and the security system access code from ASD Operations Department and obtain the facility keys by contacting the Project Manager.

10.2.8.1 A unique security code will be assigned to the Contractor. The ASD Operations office, 1301 Labar, will assign the code and provide access training.

10.2.8.2 The Contractor's signature on the key receipt acknowledges liability for the Owner's loss or damage due to unauthorized access with the facility key(s) and/or access code issued to the Contractor. The Contractor's Superintendent is solely responsible for the opening and closing of the facility.

10.2.8.3 Lost or stolen key(s) issued to the Contractor are to be reported immediately to the Project Manager. A written report shall be required for each incident.

10.2.8.4 If a FOB is issued, instead of keys, and is lost or stolen, the Contractor is required to immediately report the loss to the Project Manager. Notice is to be completed, in writing, within 12 hours or there will be a $500 fine.

10.2.8.5 Upon completion of the Project and prior to final payment, the Contractor will return all key(s) to the Project Manager. A maximum per facility charge of up to $10,000 may apply to any key not returned to the Project Manager.

10.2.8.6 Do not put any identifying tags or markers on the keys that would identify them as ASD building keys.

10.3 EMERGENCIES

10.3.1 In any emergency affecting the safety of persons or property, the Contractor shall act, at his discretion, to prevent threatened damage, injury or loss. Any additional compensation or extension of time claimed by the Contractor on account of emergency work shall be determined as provided in Article 8 for Time, and Article 12 for Changes in the Work.

END OF ARTICLE 10

ARTICLE 11

INSURANCE

11.1 GENERAL

11.1.1 Before signing this Contract, or commencing work on any project or allowing any Subcontractor to commence work, the Contractor shall obtain all insurance required under this section. The Contractor shall maintain this insurance until Final Acceptance. Proof of Insurance will be required prior to performing work under the warranty. The Contractor shall file with Owner as verification of insurance, an original signed certificate of insurance showing the type and amounts of insurance, the policy number, and expiration date. The Contractor shall provide copies of each insurance policy if requested by the Owner. The Contractor shall purchase insurance from companies reasonably acceptable to the Owner and authorized to do business in the State of Alaska, possessing a Best's policyholder's rating of A- or better and a financial rating of not less than VII.

11.2 WORKERS' COMPENSATION INSURANCE

11.2.1 The Contractor shall purchase and maintain during the life of this Contract, Workers' Compensation Insurance for all employees who will work on this project and if any work is sublet, the Contractor shall require the Subcontractor to provide similar Workers' Compensation Insurance for employees. Such workers' compensation insurance shall meet the statutory requirements of the State of Alaska.

11.3 PUBLIC AND EMPLOYER LIABILITY INSURANCE

11.3.1 The Contractor and his Subcontractors, if any, shall purchase and maintain such Public and Employer Liability Insurance as will protect the Contractor against loss which may result from claims for damages from operations under this Contract, whether such operations be those of the Contractor, a Subcontractor, or any person directly or indirectly employed by them. Such liability insurance shall have a scope of coverage at least as broad as the current ISO form # CG 0001 (occurrence version) for General Liability and the current ISO form # CA 0001 for Automobile Liability, and in minimum limits specified in Paragraph 11.3.2.

11.3.2 Public and Employer Liability Insurance Requirements

11.3.2.1 Commercial General Liability

Combined Single Limit $1,000,000
Annual Aggregate $2,000,000

11.3.2.2 Comprehensive Auto Liability

Including all owned, hired and non-owned vehicles.
Combined Single Limit $1,000,000 each accident

11.3.2.3 Employer's Liability Insurance
$1,000,000 limit

11.3.3 Umbrella Liability

11.3.3.1 The Contractor shall maintain an umbrella liability policy according to the following:

Projects < $10 million construction cost – $5,000,000 per occurrence and annual aggregate.

Projects > $10 million construction cost – $10,000,000 per occurrence and annual aggregate.

This requirement does not apply to Subcontractors.

11.3.3.2 Umbrella liability insurance shall be maintained in effect until final acceptance by the Owner of the completed construction, and for products liability and completed operations liability, a minimum of two years thereafter.

11.4 BUILDERS RISK INSURANCE

11.4.1 The Contractor shall purchase and maintain an all risk Builder's Risk policy on all construction projects. The Builders Risk coverage shall be in an amount equal to the initial contract, plus any contract modifications, and the cost of materials supplied or installed by others. Perils insured must be all physical loss and will include earthquake, flood, testing and startup, resultant damage from errors in design, plans or specifications, and transit and offsite storage.

11.4.2 A loss insured under Subparagraph 11.4.1 shall be adjusted by the Insurer, or by the Contractor as Fiduciary, and made payable to the Contractor as Fiduciary for the insureds, as their interests may appear, subject to requirements of any applicable mortgagee clause and of Subparagraph 11.4.5. The Contractor shall pay each Subcontractor a just share of any insurance monies received by the Contractor, and by appropriate agreement, written where legally required for validity, shall require each Subcontractor to make payments to his Sub-subcontractors in similar manner.

11.4.3 The Owner and Contractor shall waive all rights against each other for damages caused by fire or other perils to the extent covered by insurance obtained pursuant to this Paragraph 11.4 or any other property insurance applicable to the Work, except such rights as they may have to the proceeds of such insurance held by the Contractor as Fiduciary. The Contractor shall require, by appropriate agreement, written where legally required for validity, similar waivers in favor of the Owner and the Contractor by Subcontractors and Sub-subcontractors. With respect to the waiver of rights of recovery, the term Owner shall be deemed to include, to the extent covered by property insurance applicable thereto, his consultants, employees, agents and representatives, including the Project Manager. The Contractor waives as against any separate Contractor described in Article 6 all rights for damages caused by fire or other perils in the same manner as is provided above as against the Owner. The Owner shall require, by appropriate agreement, written where legally required for validity, similar waivers in favor of the Contractor by any separate Contractor and his Subcontractors and Sub-subcontractors.

11.4.4 If required in writing by any party in interest, the Contractor as Fiduciary shall, upon the occurrence of an insured loss, give bond for the proper performance of his duties. He shall deposit in a separate account any money so received, and he shall distribute it in accordance with a court order or award. If after such loss no other special agreement is made, replacement of damaged work shall be covered by an appropriate Change Order.

11.4.5 The Contractor as Fiduciary shall have power to adjust and settle any loss with the insurers unless one of the parties in interest shall object in writing within five (5) days after the occurrence of loss to the Owner's exercise of this power, and if such objection is made, the matter shall be decided by a court of competent jurisdiction or as parties in interest

otherwise agree. The Contractor as Fiduciary shall, in that case, make settlement with the insurers accordingly.

11.4.6 If the Owner finds it necessary to occupy or use a portion or portions of the Work prior to Substantial Completion thereof, such occupancy shall not commence prior to a time mutually agreed to by the Owner and Contractor and to which the insurance company or companies providing the property insurance have consented by endorsement of the policy or policies. This insurance shall not be canceled or lapsed on account of such partial occupancy. Consent of the Contractor and of the insurance company or companies to such occupancy or use shall not be unreasonably withheld.

11.5 CERTIFICATE OF INSURANCE REQUIREMENTS

11.5.1 Each insurance policy required in this section will be evidenced by a certificate of insurance which contains the following:

11.5.1.1 Notice of cancellation to the Anchorage School District in accordance with Alaska Statutes 21.36.220 and .260.

11.5.1.2 Contract number.

11.5.1.3 Project location.

11.5.1.4 Waiver of Subrogation. All policies, except where prohibited, will include a Waiver of Subrogation in favor of the District.

11.5.1.5 Additional Insured. All policies except Workers Compensation and professional liability will note the District as an additional insured.

11.6 OWNER'S RIGHT TO INSURE

11.6.1 In the event Contractor neglects, refuses, or fails to provide the insurance required under the Contract Documents, or if such insurance is canceled for any reason, the Owner shall have the right, but not the duty to procure the same, and the costs thereof shall be deducted from monies then due or thereafter to become due the Contractor.

11.7 ADDITIONAL INSURANCE

11.7.1 If not covered by the above insurance, the Contractor must obtain additional Insurance for items stored off-site or in transit. Payments for materials stored off-site will not be made unless Contractor provides documentation of valid insurance coverage for same.

11.8 ASBESTOS ABATEMENT SUBCONTRACTOR'S CERTIFICATE OF INSURANCE

11.8.1 After the Intent to Award Notification, the low bidder shall submit an insurance binder of insurance certificate provided by the proposed asbestos abatement subcontractor's insurance company stating that upon execution of the Contract the types and amount of insurance required elsewhere in these specifications will immediately become effective.

The asbestos abatement subcontractor is required to carry a minimum of $1,000,000 of General Public Liability Insurance with no exclusion for asbestos abatement.

11.8.2 Comprehensive General Liability Minimum Limits

Bodily Injury and Property Damage $2,000,000 per occurrence
Premises Operations

Independent Contractors
Products - Completed Operations
Contractual Liability
Broad Form Property Damage - Lloyds Form
Explosion, Collapse, and Underground
Personal Injury

11.8.3 Comprehensive Auto Liability

Including all owned, hired, and non-owned vehicles
Combined single limit per accident $1,000,000

END OF ARTICLE 11

ARTICLE 12

CHANGES IN THE WORK AND CONTRACT SUM AND TIME

12.1 CHANGES IN THE WORK

12.1.1 The Owner may, at any time, without notice to the sureties, make any change in the Work within the general scope of the Contract, including, but not limited to changes:

12.1.1.1 In the Specifications or Drawings;

12.1.1.2 In the method or manner of performance of the Work;

12.1.1.3 In the Owner-furnished facilities, equipment, materials, services or site; or

12.1.1.4 Directing acceleration in the performance of the Work for reasons other than delays caused by the Contractor.

12.1.2 All such changes in the Work shall be performed under the applicable conditions of the Contract Documents and shall be authorized in one of the following manners:

12.1.2.1 Field Directive. The Project Manager may issue a written Field Directive to the Contractor that directs a change in the Work. If the Contractor believes that the requested change will increase the Contract Time or Contract Sum, he must notify the Project Manager in writing prior to implementing the change.

12.1.2.2 Information Bulletin. The Architect may issue an Information Bulletin to the Contractor that clarifies or modifies the plans or specifications. If the Contractor believes that the clarification or modification of plans or specifications will increase the Contract Time or Contract Sum, he must notify the Project Manager in writing prior to implementing the change.

12.1.2.3 Request for Information (RFI). The Contractor may submit a RFI to the Project Manager or Architect using the ASD Procore Construction Management Program to request clarification of plans or specifications or to point out areas of apparent conflict or other concerns relating to the Work. The response to the RFI by the Architect or Project Manager may clarify or modify the plans or specifications. If the Contractor believes that the clarification or modification of plans or specifications will increase the Contract Time or Contract Sum, he must notify the Project Manager in writing prior to implementing the change.

12.1.2.4 Request for Proposal (RFP). The Owner may issue an RFP to the Contractor that directs a change in the Work and requests the Contractor’s evaluation of the impact of the change on Contract Time or Contract Sum. If the Contractor believes that the Work required by the RFP will increase the Contract Time or Contract Sum, he must notify the Project Manager in writing prior to implementing the changes.

12.1.3 Except as provided in Subparagraph 12.1.2, no order, statement or conduct of the Owner, Project Manager or Architect shall be treated as a change or entitle the Contractor to an equitable adjustment hereunder. No oral agreement of any kind shall be construed as a Change Order.

12.2 AMENDING CONTRACT SUM OR TIME

12.2.1 If any change under Paragraph 12.1 causes an increase or decrease in the Contractor's cost or the time required for the performance of any part of the Work under the Contract, including Work not affected directly by the change, an equitable adjustment shall be processed and approved following the provisions of Division 1, Section 01311, Project Schedule for any adjustment to time. Adjustments to Contract Sum shall be determined in one or more of the following ways:

12.2.1.1 By mutual acceptance of a lump sum price properly itemized in accordance with Subparagraph 12.2.2 and supported by sufficient data to permit evaluation;

12.2.1.2 In the event that unit prices are included in the bid and accepted by the Owner, payment for the Work performed shall be at the unit price amount for each item of Work accepted by the Owner and conforming to the contract requirements. Such prices shall be additive and deductive and include all costs necessary to complete the Work, inclusive of overhead costs and profit.

12.2.1.3 If prior to the commencement of the Work the Contractor has not provided a lump sum price, or the Contractor and the Owner have not agreed on a lump sum price as described in Subparagraph 12.2.1.1 above, the price shall be established in one of the following ways, as determined by the Project Manager;

1. on a lump sum basis following completion of the Work. The lump sum price shall be properly itemized in accordance with Subparagraph 12.2.2. and supported by sufficient data to permit evaluation;

2. on a time and materials basis, with or without a maximum not-to-exceed price, at the discretion of the Project Manager. Costs will be accumulated on a time and materials basis as described in Subparagraph 12.2.3 and presented daily (the day after the Work is performed) for approval by the Owner on the forms provided by the Owner. The daily report will be signed by the Contractor and the Owner.

12.2.2 For Work proceeding on a lump sum basis. In accordance with Subparagraph 12.2.1.1 or 12.2.1.3.1, the Contractor shall provide a detailed breakdown of the costs as described herein and submit the costs and substantiating data in a proposal to the Owner:

12.2.2.1 Direct Costs: Direct costs shall be limited to the following: cost of materials, including sales tax and cost of delivery to the project; cost of labor (from apprentice level up through and including the general foreman classification) comprising of the base wage plus fringe benefits, including burden (Social Security, Worker's Compensation, and Unemployment Insurance, etc.); rental rate including fuel and maintenance for any power tools valued at over $3,000 and equipment as described below, under "Equipment Rates;" bond premiums and additional cost of Builder's Risk Insurance, at rates equal to the amount billed for the base contract or the actual rate as supported by an invoice.

12.2.2.1.1 Equipment Rates: For any machinery or special equipment (other than small tools) which has been authorized by the Project Manager, the Contractor shall receive the rental rates in the current edition and appropriate volume of the "Rental Rate Blue Book for Construction Equipment," published by K-III Directory Corp., 10 Lake Drive, Highstown, NJ 08520-5397.

Hourly rental rates shall be determined as follows. The established hourly rental rate shall be equal to the adjusted monthly rate for the basic equipment plus the adjusted monthly rate for applicable attachments, both divided by 176, and multiplied by the area adjustment factor, plus the estimated hourly operating costs. The adjusted monthly rate is that resulting from application of the rate adjustment formula in order to eliminate replacement cost allowances in machine depreciation and contingency cost allowances. Attachments shall not be included unless required for the time and materials Work. For equipment not listed in the Blue Book, the Contractor shall receive a rental rate as agreed upon before such Work is begun. If agreement cannot be reached, the Owner reserves the right to establish a rate based on similar equipment in the Blue Book or prevailing commercial rates in the area. These rates shall apply for equipment used during the Contractor's regular shift of 10 hours per day. Where the equipment is used more than 10 hours per day, either on the Contractor's normal Work or on time and materials, and either on single or multiple shifts, an overtime rate, computed as follows, shall apply: The hourly overtime rate shall be equal to the adjusted monthly rate for the basic equipment plus the adjusted monthly rate for applicable attachments, both divided by 352, and multiplied by the area adjustment factor, plus the estimated hourly operating cost.

12.2.2.1.2 Equipment which must be rented or leased specifically for Work required under this section shall be authorized in writing by the Project Manager.

12.2.2.1.3 When it is necessary to obtain equipment from sources beyond the project limits exclusively for time and materials Work, the actual cost of transferring the equipment to the site of the Work and return will be allowed as an additional item of expense. Where the move is made by common carrier, the move-in allowance will be limited to the amount of the freight bill or invoice. If the Contractor hauls the equipment with his own forces, the allowance will be limited to the rental rate for the hauling unit plus operator wages. In the event that the equipment is transferred under its own power, the moving allowance will be limited to one-half of the normal hourly rental rate plus operator's wages. In the event that the move-out is to a different location, payment will in no instance exceed the amount of the move-in. Move-in allowance shall not be made for equipment brought to the project for time and materials Work which is subsequently retained on the project and utilized for completion of contract items, camp maintenance, or related Work.

12.2.2.1.4 Equipment ordered to be on stand-by basis shall be paid for at the stand-by rental rate for the number of hours in the Contractor's normal Work shift, but not to exceed 8 hours per day. The stand-by rental rate shall be computed as follows:

The hourly stand-by rate shall be equal to the adjusted monthly rate for the basic equipment plus the adjusted monthly rate for applicable attachments, both divided by 352, all multiplied by the

area adjustment factor.

Time will be recorded to the nearest one-half hour for purposes of computing compensation to the Contractor for equipment utilized under these rates.

The equipment Direct Cost determination covers all costs for providing required equipment and no additional compensation will be made for other costs such as, but not limited to, fuels, lubricants, replacement parts or maintenance costs. Cost of repairs, both major and minor as well as charges for mechanic's time utilized in servicing equipment to ready it for use prior to moving to the project and similar charges will not be allowed.

12.2.2.2 Overhead: Overhead shall include the following: the Contractor's management staff; supervision; superintendence; wages of timekeepers; watchmen and clerks; small tools; incidentals; costs of preparing and responding to Request for Proposals, including estimating; schedule revisions, software costs and clerical expenses; general home and field office expenses; including any financial/financing costs; legal costs; and/or accounting costs; temporary facilities; temporary utilities (power, water, sewer, telephone, etc.) And any utilities used by the Contractor during the construction period; and all other expenses not specifically defined in Subparagraph 12.2.2.1 as direct costs. Unless specifically required or requested, any travel and associated costs from outside of the Municipality of Anchorage is considered as part of the Contractor's project overhead and will not be paid by the Owner.

12.2.2.3 The Contractor shall apply a combined percentage rate to the direct costs to compensate it for additional Overhead and Profit associated with the change. The combined rate to the Owner of any change shall not exceed the rates set forth in the following schedule:

For the Contractor, for Work performed by his own forces, up to fifteen percent (15%) of direct costs;

For each Subcontractor involved, for Work performed by the Subcontractor's forces, up to fifteen percent (15%) of direct costs;

For the Contractor, for Work performed by Subcontractors, up to ten percent (10%) of the Subcontractor's direct costs;

For the Subcontractor, for Work performed by the multiple-tier-contractors up to ten percent (10%) of direct costs;

The total Contractor and all-subcontractors overhead allowance shall not exceed twenty-five percent (25%) of direct costs.

12.2.3 For Work proceeding on a time and material basis in accordance with Subparagraph 12.2.1.3.2, the Contractor shall be compensated for its costs in accordance with the following:

12.2.3.1 Direct Costs: Direct Costs shall be as defined in Subparagraph 12.2.2.1.

12.2.3.2 Overhead: Overhead shall be as defined in Subparagraph 12.2.2.2.

12.2.3.3 Overhead and Profit combined included in the total costs to the Owner of any change shall not exceed the rates set forth in the following schedule:

For the Contractor, for Work performed by his own forces, up to ten percent (10%) of direct costs;

For each Subcontractor involved, for Work performed by the Subcontractor's forces, up to ten percent (10%) of direct costs;

For the Contractor, for Work performed by Subcontractors, up to five percent (5%) of the Subcontractor's direct cost.

For the Subcontractor, for Work performed by multiple-tier-contractors up to five percent (5%) of direct costs;

The total Contractor and multiple-tier-contractor overhead allowances shall not exceed twenty percent (20%) of direct costs.

12.2.4 If the net value of a change results in a credit from the Contractor, Subcontractor, or Material Suppliers or Vendors, the credit given shall be the net cost without overhead or profit. The costs as used herein shall include all items of labor, materials, plant and equipment. Credit changes shall include a percentage of the direct costs for overhead and profit at fifty percent (50%) of the rates defined in Subparagraph 12.2.2.3.

12.2.5 If unit prices are stated in the Contract Documents or subsequently agreed upon, and if the quantities originally contemplated are so changed in the proposed Change Order that application of the agreed unit prices to the quantities of Work proposed will cause substantial inequity to the Owner or the Contractor, the applicable unit prices shall be equitably adjusted.

12.2.6 The Contract Sum, the Contract Time, and the date required for performance of any part of the Work may be changed only by a Change Order to the Contract. Each Change Order will be identified at the bottom of each approved RFP, with a heading of "Change Order Authorization." Change Orders executed pursuant to this article constitute full and final settlement of all aspects of cost and time related to and/or occasioned by the Work (or event) described therein. Costs are defined to include all direct labor costs; all direct materials and equipment expenses; any and all overhead, profit, and commission; any and all impact costs related to and/or occasioned by the Work described herein; as well as all taxes and insurance. All Change Orders shall be approved by the Project Manager and signed by the Owner and Contractor.

12.2.7 For accounting purposes, the Change Orders identified in Subparagraph 12.2.6 will be accumulated on a monthly basis or more frequently and summarized in a Summary Change Order. The Summary Change Order shall be approved by the Project Manager and signed by the Owner and Contractor. No claim by the Contractor for or on account of any Change Order shall be due nor shall any such claim appear on an Application for Payment or demand for final payment until the Summary Change Order has been fully executed by the Contractor and the Owner.

12.2.8 The Superintendent of Schools and/or the Senior Director of Capital Planning and Construction are authorized to make contract modifications or to execute orders up to one hundred thousand dollars ($100,000) that are within the project's budget. The Superintendent is authorized to make contract modifications in excess of one hundred thousand dollars ($100,000) but not-to-exceed two hundred fifty thousand dollars ($250,000) that are within the project's budget. All contract modifications or change orders

above two hundred fifty thousand dollars ($250,000) shall be recommended by the Superintendent to the School Board for its approval.

12.2.9 No claim by the Contractor for an equitable adjustment hereunder shall be allowed if asserted after final payment or more than six months after the date of substantial completion, whichever is earlier.

12.2.10 Nothing in this Article shall excuse the Contractor from proceeding with the Contract as changed.

12.3 DIFFERING CONDITIONS

12.3.1 The Contractor shall promptly, and before the conditions are disturbed, give written notice to the Owner of (1) subsurface or latent physical conditions at the site which differ materially from those indicated in this Contract, or (2) unknown physical conditions at the site, of an unusual nature, which differ materially from those ordinarily encountered and generally recognized as inherent in Work of the character provided for in the Contract.

12.3.2 The Owner shall investigate the site conditions promptly after receiving notice. Work shall not proceed at the affected site, except at the Contractor's risk, until the Owner has provided written instructions to the Contractor. If the conditions do materially so differ and cause an increase or decrease in the Contractor's cost of, or the time required for, performing any part of the Work under this Contract, whether or not changed as a result of the conditions, an adjustment shall be made under this Article and the Contract modified in writing accordingly.

12.3.3 No request by the Contractor for an adjustment to the Contract under this Article shall be allowed unless the Contractor has given the written notice required.

12.3.4 No claim by the Contractor for an adjustment hereunder shall be allowed if asserted after final payment or more than six months after the date of substantial completion, whichever is earlier.

12.4 CLAIMS FOR ADDITIONAL COST OR TIME

12.4.1 If the Contractor claims that additional cost is involved because of, but not limited to (1) any written interpretation pursuant to Subparagraph 2.2.8; (2) any order by the Owner to stop the Work pursuant to Paragraph 3.4 where the Contractor was not at fault; or (3) any other impacts related to the Work, the Contractor shall make such claim as provided in Subparagraph 12.4.2.

12.4.2 If the Contractor wishes to make a claim for an increase in the Contract Sum, and such claim is not barred under Paragraph 8.3, he shall deliver to the Project Manager written notice thereof within fourteen (14) days after the occurrence of the event giving rise to such claim. This notice shall be given by the Contractor before proceeding to execute the Work, except in an emergency endangering life or property in which case the Contractor shall proceed in accordance with Paragraph 10.3. No such claim shall be valid unless so made. The written notice shall state:

12.4.2.1 the date, nature and circumstances of the conduct regarded as a change;

12.4.2.2 the name, function and activity of each Contractor official, agent or employee involved in or knowledgeable about such conduct;

12.4.2.3 the identification of any documents and the substance of any communication

involved in such conduct;

12.4.2.4 in the instance of alleged acceleration of scheduled performance or delivery, the basis upon which it arose;

12.4.2.5 the particular elements of Contract performance for which the Contractor may seek an equitable adjustment under this Paragraph, including:

12.4.2.5.1 what Contract Drawings or Specification have been or may be affected by the alleged change;

12.4.2.5.2 what labor or materials or both have been or may be added, deleted or wasted by the alleged change;

12.4.2.5.3 to the extent practicable, what delay and disruption in the manner and sequence of performance and effect on continued performances have been or may be caused by the alleged change in accordance with Division1, Section 01311, “Project Schedule;”

12.4.2.5.4 what adjustments to the Contract Sum and other provisions of the Contract affected by the alleged change are estimated; and

12.4.2.6 the Contractor’s estimate of the time by which the Project Manager and Architect must respond to the Contractor’s notice to minimize cost, delay or disruption of performance in accordance with Division 1, Section 01311, “Project Schedule.”

12.4.3. After receipt of a Contractor’s claim, the Project Manager may visit the site, schedule an informal review hearing, or request additional information in order to fully evaluate the issues of the claim. The Project Manager has thirty (30) calendar days to review the claim and to send a written decision to the Contractor. If the Project Manager agrees with the Contractor that the issues presented in the Contractor’s claim justify a change in the Contract Sum or the Contract Time, the Project Manager and the Contractor shall negotiate the amount of the adjustment in the Contract.

If the Project Manager determines that the claim does not justify a change in the Contract Sum or Contract Time, of if the Project Manager cannot reach agreement with the Contractor on the amount of the adjustment in the Contract Sum or Contract Time, the amount shall be determined in accordance with Paragraph 12.5

12.4.4 In no event shall the Contractor slow or stop the Work while such determination is pending and the Owner shall continue to make payment in accordance with the Contract Documents except as to the amount in dispute. Any change in the Contract Sum resulting from such claim shall be authorized by Change Order.

12.5 RESOLUTION OF DISPUTED CLAIMS

12.5.1 All disputed claims arising from this contract shall be resolved according to the process identified in this section 12.5. This includes any interpretations of the contract documents, claims for increase in the Contract Sum or Contract Time, or any other issues of equitable adjustment.

12.5.2 Disputes between the Owner and the Contractor will be processed through the appeal process described in 12.5.3 and/or through the use of Alternative Dispute Resolution (ADR) procedures described in 12.5.4.

12.5.3 Appeal Process

12.5.3.1 If the Contractor does not agree with the decision of the Project Manager, the Contractor may, within ten (10) calendar days of receipt of the decision, file a notice of appeal with the Chief Operating Officer. The Chief Operating Officer will then have sixty (60) calendar days to review the appeal and send a written decision to the Contractor.

12.5.3.2 If the Contractor does not agree with the final decision rendered by the Chief Operating Officer, it may pursue litigation.

12.5.4 ADR Process

12.5.4.1 Either the Owner or the Contractor may request, prior to litigation, that a dispute be submitted to mandatory mediation.

12.5.4.2 The parties shall jointly select and compensate a third party mediator.

12.5.4.3 Both parties shall attend joint mediation sessions and make a good faith effort to reach agreement through this process.

12.5.4.4 There is no obligation for either of the parties to accept any agreement during the mediation process.

12.5.5 The Contractor shall diligently carry on the Work and maintain the progress schedule during any dispute resolution proceedings, unless otherwise agreed in writing.

END OF ARTICLE 12

ARTICLE 13

UNCOVERING AND CORRECTION OF WORK

13.1 UNCOVERING OF WORK

13.1.1 If any portion of the Work should be covered contrary to the request of the Owner, Project Manager or the Architect or to requirements specifically expressed in the Contract Documents, it must, if required in writing by the Project Manager, be uncovered for his observation and shall be replaced at the Contractor's expense.

13.1.2 If any other portion of the Work has been covered which the Architect or the Project Manager has not specifically requested to observe prior to being covered, either may request to see such Work and it shall be uncovered by the Contractor. If such Work be found in accordance with the Contract Documents, the cost of uncovering and replacement shall, by appropriate Change Order, be charged to the Owner. If such work be found not in accordance with the Contract Documents, the Contractor shall pay such costs unless it be found that this condition was caused by the Owner or a separate contractor as provided in Article 6, in which event the Owner shall be responsible for the payment of such costs.

13.2 CORRECTION OF WORK

13.2.1 The Contractor shall promptly correct all Work rejected by the Project Manager as defective or as failing to conform to the Contract Documents whether observed before or after Substantial Completion and whether or not fabricated, installed or completed. The Contractor shall bear all costs of correcting such rejected Work, including additional Owner Administrative and legal expenses, and additional compensation for the Architect's and/or Project Manager's additional services made necessary thereby.

13.2.2 If, within one (1) year after the Date of Substantial Completion of the Work or designated portion thereof or within such longer period of time as may be prescribed by law or by the terms of any applicable special warranty required by the Contract Documents, any of the Work is found to be defective or not in accordance with the Contract Documents, the Contractor shall correct it promptly after receipt of a written notice from the Owner through the Project Manager to do so unless the Owner through the Project Manager has previously given the Contractor a written acceptance of such condition. This obligation shall survive the provisions of Subparagraph 9.5.5 and termination of the Contract. The Owner shall give such notice promptly after discovery of the condition.

13.2.3 The Contractor, unless removal is waived by the Owner, shall remove from the site all portions of the Work which are defective or non-conforming, or if permitted or required, he shall correct such Work in place by and at the expense of the Contractor promptly after receipt of notice, and such rejected Work shall not thereafter be tendered for acceptance unless the former rejection or requirement for correction is disclosed.

13.2.4 If the Contractor does not proceed with the correction of such defective or non-conforming Work within a reasonable time fixed by written notice from the Owner, through the Project Manager, the Owner may either:

13.2.4.1 by separate contract or otherwise replace or correct such Work and charge the Contractor the cost occasioned the Owner thereby and remove and store the materials or equipment at the expense of the Contractor, or

13.2.4.2 terminate this Contract for default as provided in Paragraph 14.1. If the Contractor does not pay the cost of such replacement or correction and the

removal and storage within ten (10) days thereafter, the Owner may upon ten (10) additional days' written notice sell such Work at auction or at private sale and shall account for the net proceeds thereof, after deducting all the costs that should have been borne by the Contractor, including compensation for the Owner's administrative and legal expenses, and additional services of the Architect and the Project Manager made necessary thereby. If such proceeds of sale do not cover all costs which the Contractor and an appropriate Change Order shall be issued. If the payments then or thereafter due the Contractor are not sufficient to cover such amount, the Contractor shall pay the difference to the Owner.

13.2.5 The Contractor shall bear the cost of making good all Work of the Owner or separate contractors destroyed or damaged by such correction or removal.

13.2.6 Nothing contained in this Paragraph 13.2 shall be construed to establish a period of limitation with respect to any other obligation which the Contractor might have under the Contract Documents, including Paragraph 4.5. thereof. The establishment of the time period of one (1) year after the date of Substantial Completion or such longer period of time as may be prescribed by law or by the terms of any warranty required by the Contract Documents relates only to the specific obligation of the Contractor to correct the Work, and has no relationship to the time within which his obligation to comply with the Contract documents may be sought to be enforced, nor to the time within which proceedings may be commenced to establish the Contractor's liability with respect to his obligations other than specifically to correct the Work.

13.3 ACCEPTANCE OF DEFECTIVE OR NONCONFORMING WORK

13.3.1 If the Owner prefers to accept defective or nonconforming Work, he may do so instead of requiring its removal and correction, in which case a Change Order will be issued to reflect a reduction in the Contract Sum where appropriate and equitable, or the Owner may elect to accept payment in materials or services, in lieu of a reduction in the Contract Sum. If the amount of a reduction is determined after final payment, it shall be paid to the Owner directly by the Contractor.

END OF ARTICLE 13

ARTICLE 14

TERMINATION OF THE CONTRACT

14.1 TERMINATION BY THE OWNER

14.1.1 If the Contractor:

14.1.1.1 is adjudged bankrupt; or

14.1.1.2 makes a general assignment for the benefit of his creditors; or

14.1.1.3 has a receiver appointed on account of his insolvency; or

14.1.1.4 if he refuses or fails to commence the Work within the time required by this Contract; or

14.1.1.5 refuses or fails to prosecute the Work or any separable part with the diligence that will ensure its completion within the time specified in this Contract, including any extension; or

14.1.1.6 refuses or fails to provide sufficient and properly skilled workmen or proper materials or equipment to complete the Work in an acceptable manner and without delay; or

14.1.1.7 refuses or fails to complete the Work in accordance with the Project Schedule Milestone Dates set forth under Section 00200 hereof; or

14.1.1.8 fails to make prompt payment to Subcontractors or for materials or labor, or

14.1.1.9 persistently disregards laws, ordinances, rules, regulations, or orders of any public authority having jurisdiction; or

14.1.1.10 fails or refuses to comply with the requirements of Division 1, Section 01311, “Project Schedule” of the Contract Documents; or

14.1.1.11 otherwise is guilty of a substantial violation of a provision of the Contract Documents,

then the Owner, may, without prejudice to any right or remedy and after giving the Contractor and his surety, if any, seven (7) days’ written notice, terminate the employment of the Contractor and take possession of the site and of all materials, equipment, tools, construction equipment and machinery thereon owned by the Contractor and may finish the Work by whatever method he may deem expedient. In such case the Contractor shall not be entitled to receive any further payment until the Work is finished. Such an event of termination shall at the option of the Owner result in the automatic assignment to the Owner of all of the Contractor’s subcontracts, and the Owner may thereafter enforce such subcontracts in the prosecution of the Work in the same manner and to the same extent as the Contractor.

14.1.2 If the cost of finishing the Work exceeds the unpaid portion of the Contract Sum, the Contractor or his assigns, heirs or sureties shall pay the difference to the Owner. This obligation shall survive the termination of the Contract.

14.1.3 Nothing contained in this Article 14 shall impair any of the obligations of the surety.

14.2 TERMINATION FOR CONVENIENCE

14.2.1 The performance of the Work under this Contract may be terminated by the Owner in whole, or from time to time in part, whenever the Owner shall determine that such termination is in the best interest of the Owner. Any such termination shall be effected by delivery to the Contractor of a Notice of Termination specifying the extent to which performance of Work under the Contract is terminated, and the date upon which such termination becomes effective.

14.2.2 After receipt of a Notice of Termination, and except as otherwise directed by the Owner, the Contractor shall:

14.2.2.1 stop Work under the Contract on the date and to the extent specified in the Notice of Termination;

14.2.2.2 place no further orders or subcontracts for materials, services or equipment, except as may be necessary for completion of such portion of this Work under the Contract as is not terminated;

14.2.2.3 terminate all orders and subcontractors to the extent that they relate to the performance of Work terminated by the Notice of Termination;

14.2.2.4 assign to the Owner, in the manner, at the times, and to the extent directed by the Owner, all of the right, title, and interest of the Contractor under the orders and subcontracts so terminated, in which case the Owner shall have the right, in its discretion, to settle or pay any or all claims arising out of the termination of such orders and subcontracts;

14.2.2.5 settle all outstanding liabilities and all claims arising out of such termination of orders and subcontracts, with the approval or ratification of the Owner, to the extent he may require, which approval of ratification shall be final for all the purposes of this clause;

14.2.2.6 transfer title and deliver to the Owner, in the manner, at the times, and to the extent, if any, directed by the Owner, (A) the fabricated or unfabricated parts, Work in process, completed Work, supplies, and other material produced as a part of, or acquired in connection with the performance of, the Work terminated by the Notice of Termination, and (B) the completed or partially completed plans, drawings, information, and the property which, if the Contract has been completed, would have been required to be furnished to the Owner;

14.2.2.7 use his best efforts to sell, in the manner, at the time, to the extent and at the price or prices directed or authorized by the Owner, any property of the types referred to in Subparagraph 14.2.2.6 above, provided, however, that the Contractor (A) shall not be required to extend credit to any purchase, and (B) may acquire any such property under the conditions prescribed by and at a price or prices approved by the Owner, and provided further, that the proceeds of any such transfer or disposition shall be applied in reduction of any payments to be made by the Owner to the Contractor under this Contract or shall otherwise be credited to the price or cost of the Work covered by this Contract or paid in such other manner as the Owner may direct;

14.2.2.8 complete performance of such part of the Work as shall not have been terminated by the Notice of Termination and may incur obligations as are

necessary to do so; and

14.2.2.9 take such action as may be necessary, or as the Owner may direct, for the protection and preservation of the property related to this Contract which is in the possession of the Contractor and in which the Owner has or may acquire an interest.

14.2.3 The Contractor may submit to the Owner a list, certified as to quantity and quality, of any or all items of termination inventory not previously disposed of, exclusive of items the disposition of which has been directed or authorized by the Owner, and may request the Owner to remove such items or enter into a storage agreement covering them. Not later than fifteen (15) days thereafter, the Owner will accept title to such items and remove them or enter into a storage agreement covering the same; provided that the list submitted shall be subject to verification by the Owner upon removal of all items, or if the items are stored within forty-five (45) days from the date of submission of the list, and any necessary adjustment to correct the list as submitted shall be made prior to final settlement.

14.2.4 After receipt of a Notice of Termination, the Contractor shall submit to the Owner his termination claim, in the form and with certification prescribed by the Owner. Such claim shall be submitted promptly but in no event later than six (6) months from the effective date of termination. Upon failure of the Contractor to submit his termination claim within the time allowed, the Owner may determine on the basis of information available to him, the amount, if any, due to the Contractor by reason of the termination and shall thereupon pay to the Contractor the amount so determined.

14.2.5 Subject to the provisions of Subparagraph 14.2.4 above, the Contractor and the Owner may agree upon the whole or any part of the amount or amounts to be paid to the Contractor by reason of the total or partial termination of Work pursuant to this paragraph, which amount or amounts may include a reasonable allowance of profit on Work done; provided that such agreed amount or amounts, exclusive of settlement costs, shall not exceed the total Contract Sum as reduced by the amount of payments otherwise made and as further reduced by the Contract Sum attributable to that portion of Work not terminated. The Contract shall be amended accordingly, and the Contractor shall be paid the agreed amount. Nothing in Subparagraph 14.2.6 below, prescribing the amount to be paid to the Contractor in the event of failure of the Contractor and the Owner to agree upon the whole amount to be paid to the Contractor by reason of the termination of Work pursuant to this clause, shall be deemed to limit, restrict, or otherwise determine or affect the amount or amounts which may be agreed upon to be paid to the Contractor pursuant to this Subparagraph 14.2.5.

14.2.6 In the event of the failure of the Contractor and the Owner to agree, as provided in Subparagraph 14.2.5 above, upon the whole amount to be paid to the Contractor by reason of the termination of Work pursuant to this paragraph, the Owner shall pay to the Contractor the amounts determined by the Owner as follows, but without duplication of any amounts agreed upon in accordance with Subparagraph 14.2.5:

14.2.6.1 with respect to all Contract Work performed prior to the effective date of the Notice of Termination, the total (without duplication of any items) of:

14.2.6.1.1 the cost of such Work;

14.2.6.1.2 the cost of settling and paying claims arising out of the termination of Work under subcontracts or orders as provided in Subparagraph 14.2.2.5 above exclusive of the amounts paid or payable on account of supplies or materials delivered or services

furnished by the Subcontractor prior to the effective date of the Notice of Termination Work under this Contract, which amounts shall be included in the cost on account of which payment is made under Subparagraph 14.2.6.1 above; and

14.2.6.1.3 a sum as profit on Subparagraph 14.2.6.1.1 above, determined by the Owner to be fair and reasonable; and

14.2.6.2 the reasonable cost incidental to termination of Work including:

14.2.6.2.1 accounting, legal, clerical and other expenses reasonably necessary for the preparation of termination settlement proposals and supporting data;

14.2.6.2.2 the termination and settlement of subcontracts (excluding the amounts of such settlements); and storage, transportation and other costs incurred (pursuant to Subparagraph 14.2.2.9), reasonably necessary for the preservation, protection or disposition of the termination inventory.

14.2.6.3 The total sum to be paid to the Contractor under Subparagraph 14.2.6.1 above shall not exceed the total Contract Sum as reduced by the portion of the Contract Sum attributable to that portion of Work not terminated. Except for normal spoilage, and except to the extent that the Owner shall have otherwise expressly assumed the risk of loss, there shall be excluded from the amounts payable to the Contractor under Subparagraph 14.2.6.1, the fair value, as determined by the Owner, of property which is destroyed or lost, stolen, or damaged so as to become undeliverable to the Owner, or to a buyer pursuant to Subparagraph 14.2.2.7.

14.2.7 In arriving at the amount due the Contractor under this paragraph, there shall be deducted (1) all unliquidated advance or other payments on account theretofore made to the Contractor, applicable to the terminated portion of this Contract, (2) any claim which the Owner may have against the Contractor in connection with this Contract, and (3) the agreed price for, or the proceeds of sale of, any materials, supplies or other things acquired by the Contractor or sold, pursuant to the provisions of this paragraph and not otherwise recovered by or credited to the Owner.

14.2.8 If the termination hereunder be partial, the Contractor may file with the Owner a claim for an equitable adjustment of the price or prices specified in the Contract relating to the continued portion of the Contract (the portion not terminated by the Notice of Termination), and such equitable adjustment as may be agreed upon shall be made in such price or prices. Any claim by the Contractor for an equitable adjustment under this clause must be asserted within ninety (90) days from the effective date of the termination.

14.2.9 The Owner may from time to time, under such terms and conditions as it may prescribe, make partial payments and payments on account against costs incurred by the Contractor in connection with the terminated portion of this Contract whenever in the opinion of the Owner the aggregate of such payments shall be within the amount to which the Contractor will be entitled hereunder. If the total of such payments is in excess of the amount finally agreed or determined to be due under this paragraph, such excess shall be payable by the Contractor to the Owner upon demand, together with interest computed at the legal prevailing rate, for the period from the date such excess payment is received by the Contractor to the date on which such excess is repaid to the Owner, provided, however, that no interest shall be charged with respect to any such excess payment, attributable to

a reduction in the Contractor's claim by reason of retention or other disposition of termination inventory until ten (10) days after the date of such retention or disposition, or such later date as determined by the Owner by reason of the circumstances.

14.2.10 Unless otherwise provided for in this Contract, or by applicable statue, the Contractor shall - from the effective date of termination until the expiration of three (3) years after final settlement under this Contract - preserve and make available to the Owner at all reasonable times at the office of the Contractor but without direct charge to the Owner, all his books, records, documents and other evidence bearing on the costs and expenses of the Contractor under this Contract and relating to the Work terminated hereunder, or, to the extent approved by the Project Manager, photographs, microphotographs, or other authentic reproductions thereof.

END OF ARTICLE 14

END OF SECTION

SUPPLEMENTARY GENERAL CONDITIONS TO THE CONTRACT FOR CONSTRUCTION

REFERENCE:

1. **GENERAL CONDITIONS OF THE CONTRACT FOR CONSTRUCTION ANCHORAGE SCHOOL DISTRICT, ANCHORAGE, ALASKA**, constitutes the General Conditions of this Contract, and is further revised and supplemented by the provisions of these Supplementary General Conditions. The General Conditions and the Supplementary General Conditions are applicable to all of the work under this Contract and shall apply to the Contractor and all Subcontractors, Sub-subcontractors, and Material Suppliers and Vendors.

SUPPLEMENTS:

1. The following supplements modify, change, delete, or add to the General Conditions. Where any article of the General Conditions is modified or any paragraph deleted, subparagraph or clause thereof is modified, or deleted by these supplements, the unaltered provisions of such article, paragraph, sub-paragraph or clause shall remain in effect.

ARTICLE 4

Add the following new Paragraphs 4.7.1.2 & 4.7.1.3:

4.7.1.2 Unless otherwise authorized by the Project Manager, successfully obtaining the necessary permits shall be the responsibility of the Contractor and shall constitute a requirement for the issuance of the Notice to Proceed by the Owner.

4.7.1.3 Contractor shall submit Fire Alarm shop drawings to the Municipality of Anchorage Building Safety Office.

4.7.1.3.1 Contractor shall pay for the Municipality of Anchorage Fire Alarm permits.

4.7.1.3.2 Contractor shall obtain the permits upon approval.

Add the following new Paragraph 4.21, Construction Management Software:

4.21 CONSTRUCTION MANAGEMENT SOFTWARE

4.21.1 The Contractor shall fully utilize the Owner provided construction management software, currently Sage Procore Construction Management for communications, Submittals, Requests for Information, for submission of construction record documents and photographs, and other purposes as directed by the Project Manager.

4.21.2 The contractor shall designate a minimum of two (2) people from their internal project staff to access the Construction Management Software. It is incumbent upon the Contractor to ensure these individuals familiarize themselves and become proficient in the use of the Construction Management software utilizing the manuals, help files, training videos, forums and other support services provided by the Construction Management Software.

ARTICLE 7

Add the following new Paragraph 7.12, Fire Alarm System:

7.12 FIRE ALARM SYSTEM

7.12.1 Before beginning any work that may result in a fire alarm transmission, the contractor shall call both the Anchorage Fire Department dispatcher at 522-1122 and the local fire station which would respond to an alarm and let them know you will be working on the system and for approximately how long. Second the contractor shall call Guardian Security at 277-1975 and notify the dispatcher that you have called the Fire Department, what type of work you are planning to do, and approximately how long before you expect to be completed. After the contractor is completed with your work, you must reverse the process by notifying the Fire Department dispatcher and the ASD Dispatcher that you are finished.

7.12.2 The Contractor shall be held responsible for all charges incurred from false fire alarms. Currently the Anchorage Fire Department charges seven hundred fifty dollars and no cents ($750.00) per false alarm, or current rate charged.

Add the following new Paragraph 7.13, Apprenticeship Utilization Requirements for Contracts:

7.13 APPRENTICESHIP UTILIZATION REQUIREMENTS FOR CONTRACTS

7.13.1 Once awarded a contract by ASD, the prime contractor will be responsible to gather and submit all documentation to ASD to confirm compliance with the Apprenticeship Utilization Policy (“AUP”) mandated by Anchorage School Board Policy 3311.1.2. The Prime contractor will provide documentation to ASD to confirm that 15% of the labor hours worked in trades/crafts categories that are included in the Alaskan Federally Registered Apprenticeship Program has been executed by certified apprentices enrolled in those programs, and will provide documentation to confirm that the apprentices listed on the documentation submitted are currently in good standing with their Alaskan Federally Registered Apprenticeship Program. ASD will provide several forms which the prime contractor will be required to fill out in addition to submitting their certified payroll documents. Also, ASD will audit the prime contractor’s documentation on the following schedule. Audits for smaller projects will be conducted every 30 days, audits for larger projects the will be done every 90 days. In addition, ASD will conduct on-site audit at non-scheduled intervals to ensure that the apprentices listed on the written documentation are physically on-site. ASD will give a reasonable notice of 24 hours prior to on-site inspections.

7.13.2 The prime contractor will be required to submit the following, at the intervals requested by ASD:

- Certified Payroll for prime and subcontractors.
- Apprenticeship Utilization Form for prime and subcontractors.
- Apprenticeship Utilization Calculation form for prime and subcontractors, which demonstrates labor hours worked by apprentices in applicable crafts/trades categories, and reports status as to whether the apprentices listed are in good standing with their Alaskan Federally Registered Apprenticeship Program.

ARTICLE 9

Add the following new Paragraph 9.12, Liquidated Damages:

9.12 LIQUIDATED DAMAGES

9.12.1 Should the Contractor fail to substantially complete the Work on or before any date stipulated for Substantial Completion (or such later date as may result from extension of time granted by the Owner), he shall pay the Owner, as liquidated damages, the sum of one thousand dollars and no cents ($1,000.00) for each consecutive calendar day that terms of the contract remain unfulfilled beyond the date allowed by the Contract, which sum is agreed upon as a reasonable and proper measure of damages which the Owner will sustain per day by failure of the Contractor to complete work within time as stipulated; it being recognized by the Owner and to the Contractor that the injury to the Owner which could result from a failure of the Contractor to complete on schedule is uncertain and cannot be computed exactly. In no way shall costs for liquidated damages be construed as a penalty on the Contractor.

9.12.2 For each consecutive calendar day that the Work remains incomplete after the date established for Final Completion, the Owner will retain from the compensation otherwise to be paid to the Contractor the sum of one thousand dollars and no cents ($1,000.00). This amount is the minimum measure of damages the Owner will sustain by failure of the Contractor to complete all remedial work, correct deficient work, clean up the project and miscellaneous tasks as required to complete all work specified.

9.12.3 In no instance shall more than one thousand dollars and no cents ($1,000.00) a day are assessed for liquidated damages for work, which remains incomplete.

ARTICLE 10

Add the following new Paragraph 10.4, Compliance:

10.4 COMPLIANCE

10.4.1 When the school is in session the Contractor will be restricted to the areas, which do not interfere with school operations. These areas shall be safety and security fenced to not impact school operations. Additional areas may be utilized upon concurrence of the Project Manager. The Contractor shall minimize his impact on education while his work is in progress. Workers must stay out of school while school is in session. All renovation work in the existing school, including sprinklers, must be performed while school is not in session. If scheduling pushes this work into the school session, then the work must be performed on nights and weekends.

10.4.2 The Contractor must maintain interior building fire exits through the construction areas and maintain these exits during all school operation hours. These exit routes may not be modified without concurrence of the Project Manager and the School Principal.

ARTICLE 11

Remove and replace Section 11.3.3.1 with the following:

11.3.3.1 The Contractor shall maintain an umbrella liability policy according to the following:

Projects < $2 million construction cost - $1,000,000 per occurrence and annual aggregate.

Projects < $10 million construction cost – $5,000,000 per occurrence and annual aggregate.

Projects > $10 million construction cost – $10,000,000 per occurrence and annual aggregate.

This requirement does not apply to Subcontractors.

Article 11, 11.4: Delete this section in its entirety and replace with the following:

Builders Risk insurance is required for scope of work identified in this project.

ARTICLE 12

Article 12, 12.5.2: Delete this section in its entirety and replace with the following:

Disputes between the Owner and the Contractor will be processed through the appeal process described in 12.5.3.

Article 12, 12.5.3: Delete this section in its entirety and replace with the following:

12.5.3 Appeal Process

12.5.3.1 The contractor will submit in writing the issue(s) being claimed and the Project Manager will review. The Project Manager may visit the site, schedule a review hearing, or request additional information in order to fully evaluate the issues of the claim. The Project Manager will send the written decision to the Contractor within ten (10) days of receipt of claim.

12.5.3.2 If the Contractor does not agree with the decision of the Project Manager, within ten (10) days from the receipt of the written decision by the Project Manager, the Contractor may request an appeal of the decision to the Senior Director of Capital Planning & Construction. The Senior Director of Capital Planning & Construction will then have ten (10) days to review the issue(s) and send a written decision to the Contractor.

12.5.3.3 If the Contractor does not agree with the decision of the Senior Director of Capital Planning & Construction, within ten (10) days from the receipt of the written decision by the Senior Director of Capital Planning & Construction, the Contractor may request an appeal of the decision to the Chief Operating Officer. The Chief Operating Officer will then have ten (10) days to review the issue(s) and send a written decision to the Contractor.

12.5.3.4 If the Contractor does not agree with the final decision rendered by the Chief Operating Officer, it may pursue litigation.

12.5.3.5 The Contractor may bring no action on claims unless the claims have been properly raised in accordance with all notice provisions of the conditions and considered in the above dispute-resolution procedures.

12.5.3.6 The Contractor shall diligently carry on the Work and maintain the progress schedule during any dispute-resolution proceedings, unless otherwise agreed in writing.

12.5.3.7 Any step in the process identified above can be waived only by explicit written waiver by both parties.

Article 12, 12.5.4: Delete this section in its entirety.

END OF SECTION

WAGE RATES

I. GENERAL

A. STATE OF ALASKA PREVAILING WAGE SCALE AND ALASKA HIRE

Attention of bidders is particularly called to the requirements as to conditions of employment to be observed and minimum wage rates to be paid under the Contract. Among other things, the requirements of Alaska's Little Davis Bacon Act (AS 36.05.010) are applicable to this project. Each bidder must inform himself/herself fully of the conditions relating to the construction of the project and the employment of labor thereon. Failure to do so will not relieve a successful bidder of his/her obligation to furnish all material and labor necessary to carry out the provisions of the Contract.

State Labor Wage and Hour Administration Pamphlets No. 600 for Laborers' and Mechanics' are updated on April 1, and September 1. It is the responsibility of the bidder to obtain the new labor wage and hour rates when available from the State of Alaska Department of Labor, and to use the Prevailing wage scale and hiring requirements when formulating your bid.

For copies of this pamphlet, contact the nearest office of the Division of Labor Standards and Safety, Wage and Hour office or visit the internet site at:

http://labor.state.ak.us/lss/pamp600.htm

END OF SECTION

GENERAL REQUIREMENTS RELOCATION

PART 1 - GENERAL

1.01 SCOPE OF WORK

A. GENERAL

1. Relocation of all Anchorage School District personal property in areas of construction shown on the drawings during the time specified herein.
2. Personal property is defined as all items not attached to the building.
3. The Anchorage School District personal property shall be moved within the building prior to the construction phase of the contract and after substantial completion
4. All personal property shall be identified by an inventory control system. A copy shall be provided to the Project Manager.
5. All work shall be coordinated with the Project Manager and Building Administrator.
6. The Owner will remove earthquake restraints from all personal property. Personal property to be moved after packing is completed.
7. The Owner will move copiers and telephones.
8. Contractor shall provide a spotter person for public safety when operating machinery.
9. Contractor shall be required to furnish all permits related to this contract, including a current Alaska Transportation Commission (A.T.C.), Common Carrier permit which allows the contractor to perform all duties as called for in this specification.
10. Contractor drivers shall be required to have the appropriate Commercial Drivers License (CDL).
11. Contractor shall abide by all laws pertaining to transportation, parking, fire lanes and safety.

B. TEMPORARY STORAGE

1. ASD property shall be placed in temporary storage.
    a. The Owner will provide temporary storage on site.
    b. Property placed in temporary storage shall be identified by location of origin.
    c. Upon substantial completion the contractor will advise the Project Manager that items in storage are ready to be moved to their permanent location. The Contractor will give the Owner 48-hours notice.

C. DELAY IN UNPACKING

1. After the removal and movement of all items to destination locations, there shall be a delay for the unpack until the return of District personnel.

D. IMPLEMENTATION MEETING

1. Prior to commencement of work under this specification section there will be an implementation meeting to discuss contract interfaces and to identify any problem areas apparent to ASD or the contractor.
2. The contractor shall bring to that meeting a list of key personnel who will be responsible for the execution of the packing/move, including a copy of driver's Commercial Drivers Licenses (CDL's) if materials are located off premises.
3. The Project Manager will coordinate the meeting with the building staff and the contractor.

E. SITE CONDITIONS

1. For bidding purposes the following site conditions exist.

a.	Hours of operation:	Unoccupied.
b.	Loading access:	Main doors.
c.	Fire Lanes:	Fire lane is to remain clear around the perimeter of the building.
d.	Handicaps Access:	Keep access available during entire move.

PART 2 - PRODUCTS

2.01 PACKING MATERIALS

A. All packing materials, (boxes, tape, pallets, wrap, dividers, etc.) shall be provided by the contractor.

2.02 SPECIAL MOVING LIBRARY BOOKS

A. Books shall be transferred to and from original shelves using moving racks/shelves or boxes provided by the contractor.

B. Boxed books shall be labeled by shelf number and location. Contractor shall provide shop drawings indicating layout of books to coordinate box labels with bookshelf numbers and labels.

C. Contactor shall move empty shelves to the storage location.

D. Books shall be stored back on original shelving at the storage location or in boxes.

E. Books shall be returned to their original shelf location and order. (Dewey Decimal Classification)

F. Contactor shall coordinate packing and unpacking of books with the school librarian.

PART 3 - EXECUTION

3.01 EQUIPMENT AND MANPOWER

A. All equipment and manpower necessary for the move shall be provided by the contractor, including vehicles, hand trucks, furniture dollies, blankets, and other necessary items required for this contract.

3.02 IDENTIFICATION OF MATERIAL BEING MOVED

A. All furniture, boxes, and other items packed by the contractor will be labeled with building destination and room number.

3.03 PACKING CONTENTS

A. The contractor shall be responsible to pack items from bookshelves, storage cabinets, file cabinets, storage rooms, as appropriate.

B. The Owner may box and labeled some property which contractor will move to destination site.

C. Computers

1. The Owner will properly shut down computers and unplug all cords.

2. The contractor shall provide packing and transporting of the computers.

3.04 PLACEMENT OF FURNITURE

A. Contractor shall place and position furniture in each office/classroom into its original location.

3.05 UNPACKING

A. Contractor shall be responsible for unpacking of contents packed by the contractor and for placement of contents in original location.

B. The Owner will set up computers once unpacked by the contractor.

3.06 PACKING, TRANSPORTATION, STORAGE, UNPACKING

A. The contractor shall provide all necessary supervision, labor, materials, tools, equipment, supplies, transportation, security, protection from inclement weather and all related requirements not mentioned to perform all service contemplated during the term of the contract in an orderly, timely, and efficient manner for the package, removal, limited storage, and reinstall at designated locations.

B. Contractor shall pack and/or guarantee the safety of all material and equipment against loss or damage during the contract term (except for property in ASD temporary storage).

C. Contractor shall reassemble all property disassembled during the move.

3.07 PROTECTION OF FINISHES

A. Contractor shall be responsible for damage to buildings, installed equipment, walls, floors, doors, door jams, and elevators.

B. Contractor shall provide protective floor coverings for carpeted areas and a minimum of 3/8 OSB in the gym and multipurpose floors.

C. Contractor shall provide protective moving pads for elevators.

END OF SECTION

SUMMARY OF WORK

PART 1. GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

1.02 WORK COVERED BY CONTRACT DOCUMENTS

A. The Work of this Contract comprises the general construction of the facility identified in the Solicitation including all noted site improvements.

B. Definition of Site: Wherein the term Site is used in the contract documents, it shall mean the areas where work is to be performed; located as identified in the Solicitation and on the Contract Drawings.

C. Acceptance of Site: The Contractor shall fully inform himself of the areas in which work is to be processed, material delivered, and limitation in working conditions, and access to work areas.

D. Existing Conditions: The drawings may not show all arrangements and condition of the site as they now exist. The Contractor shall be responsible for a complete visual inspection.

1.03 CONTRACT

A. Construct the work under a single fixed price contract as bound herein.

B. It is the intent of these documents to require all work for a complete facility and plant with only minor owner-furnished items to be incorporated. See technical sections for specifics.

1.04 WORK FURNISHED AND INSTALLED BY OWNER

A. Equipment and furniture as noted in documents. Other Contractors or ASD Maintenance personnel may be performing work at this facility concurrent with this project. See Section 1.07 below for requirements concerning coordination with Contractor’s work.

1.05 GENERAL PROJECT DESCRIPTION

A. General Description: College Gate ES, 3101 Sunflower Street, Anchorage, AK 99508

B. Construction: base bid consists of the complete replacement of the existing roof assemblies at College Gate ES and to provide a new fully adhered EPDM assembly consisting of cover board, insulation, vapor retarder and substrate boards, all new roof drain bowls, heat trace at drain bowls and overflows, roof ladders, fall protection anchors, and a new roof access location and hatch. Roof curbs for roof mounted equipment will be replaced to accommodate the new roof assembly. Parapets will be raised indicated in drawings. There will be adjustments to mechanical and electrical components to accommodate the roof work and structural upgrades. New exhaust fans and light fixtures per the design documents. Alternate 1 consists of increased roof assembly insulation thickness by two inches. Alternate 2 consists of increased roof assembly insulation thickness by four and one-quarter inches. At both alternates 1 & 2, increase parapets at

roofs G and J to achieve eight inch minimum flashing height and adjust heights of roof ladders by shop drawings during construction for approval. Alternate 3 consists of repairs to exterior metal faced plywood panels and related trims. Alternate 4 consists of repairs to damaged storm drain line below east parking lot including pavement repairs.

C. Sequence the start, conduct and completion of Work as required in Section 00200, Project Schedule Milestone Dates. Prior to Students First Day milestone dates the entrances, parking lots, and site must be clear of construction activities, materials, and debris to ensure there is no impact to school operations and functions. Coordinate work activities and project schedule with ASD prior to Students First Day milestone date to avoid potential construction impacts to school operations.

1.06 CONTRACTOR'S USE OF PREMISES

A. Limit use of premises for work and for storage to allow for:

1. Area of site indicated on Contract Drawings
2. Owner occupancy of existing building
3. Public use
4. Coordinated use of premises under direction of Project Manager.
5. Full responsibility for protection and safekeeping of products under this Contract stored at Site.
6. Moving any stored products, under Contractor's control, which interfere with operations of Owner or separate Contractor.

1.07 OWNER'S USE OF PREMISES

A. During the regular school year, conduct operations to minimize interference with normal school operations.

B. Schedule any work which could interfere with school operations during summer vacation or when the school is not in session during the regular year.

C. Cooperate with Project Manager in conducting operations to minimize conflict with and to facilitate Owner usage as established by the Project Manager.

D. Schedule work to maintain Owner’s continuous operation. Include in contract sum sufficient funds as may be required for any “after-hours” work caused by this requirement. No additional payment to Contractor will be authorized because of Contractor’s failure to anticipate required “after-hours” work.

E. At all times conduct operation as to insure the least inconvenience to students, staff, visitors, and the general public.

F. The contractor shall provide advance notice at least 72 hours prior to any utility outages or other operations anticipated to inconvenience the school activities. The Project Manager will review and evaluate the request. The contractor may have to reschedule the operations to another time that will not impact school activities.

G. The Contractor shall be responsible for maintaining power to the Fire Alarm, Security and Network systems to ensure they are in proper working order throughout the project. If the systems must be off-line during the project, the Contractor shall obtain written approval from the Project Manager. During any time in which the fire alarm or security system is not operational, the Contractor shall provide a fire watch and security watch 24 hours a day, 7 days a week, for the entire period of the shutdown at no additional cost to ASD. The Contractor shall notify the ASD Project Manager of the intended method 72 hours prior to

the shutdown.

1. An acceptable method of maintaining power to the fire alarm and security panels includes maintaining power during the entire period of the Electrical Utility Shutdown.

H. While school is occupied by students and the general public the contractor must keep operational the emergency egress lighting.

1.08 COORDINATION OF NOISE, DUST AND FUMES

A. Contain noise, dust and fumes within work area. Notify Project Manager at least 24 hours prior to any necessary excessive noise, dust or fumes. Comply with the Project Manager's instructions.

1.09 PRODUCTS FURNISHED BY OWNER AND INSTALLED BY CONTRACTOR

A. Owner's Responsibilities:

1. Arrange for and deliver necessary shop drawings, product data, and samples to Contractor.
2. Arrange and pay for product delivery to Site in accordance with construction schedule.
3. Deliver supplier's bill of materials to Contractor.
4. Inspect deliveries jointly with Contractor
5. Submit claims for Transportation damage.
6. Arrange for replacement of damaged, defective, missing or otherwise unacceptable items.
7. Arrange for manufacturer's warranties, bonds, service, and inspections as required.

B. Contractor's Responsibilities:

1. Designate delivery date for each product in construction schedule.
2. Receive and unload products at Site.
3. Promptly inspect products jointly with Owner, record shortages, damaged or defective items.
4. Handle products at Site, including uncrating and storage.
5. Protect products against damage and discoloration.
6. Assemble, install, connect, adjust, and finish products, as stipulated in respective Specification Sections.
7. Clean, repair, or replace items damaged by Contractor.

1.10 SALVAGE RIGHTS

A. Except where noted otherwise on contract documents, existing equipment which is removed as a part of the work shall become the property of the Contractor to dispose of as he sees fit.

B. Remove scheduled materials and equipment without damaging items. Store items in protected environment. Coordinate with Owner for pick up and/or delivery to the owner. If delivered to the owner include project name and school for easy identification.

1.11 USE OF OWNER'S PROPERTY AND EQUIPMENT

A. Use of Owner's property or equipment such as tools, ladders, furniture, janitorial equipment and supplies, etc., is strictly prohibited.

1.12 PERMITTING

A. Contractor shall obtain all necessary building permits required to complete the scope of work identified in the contract documents. These include any/all subcontractor or specialty permits.

B. Contractor shall ensure all required Municipal inspections, in accordance with the aforementioned permits, are requested and conducted prior to covering, closing or concealing the work in the field. Understanding and adhering to all MOA inspection requirements is mandatory. The Owner is not liable for re-inspection or rework costs associated with non-conforming or prematurely concealed work.

C. Contractor shall maintain an inspection log and retain copies of all inspection reports, on site, for review by inspection officials and district project representatives.

D. The District will be requiring preconstruction meeting with municipality building safety department.

END OF SECTION

BID ALTERNATES

PART 1. GENERAL

1.01 DESCRIPTION

A. Work included:

To allow the Owner to compare total costs where alternate materials and methods might be used, certain alternatives have been established as described in this Section of these Specifications.

B. Related work described elsewhere:

1. Pertinent Sections of these Specifications describe materials and methods required under the various alternatives.
2. The method for stating the proposed contract amount is described on the Bid Form.

1.02 SUBMITTALS

A. All alternatives described in this Section of these Specifications are required to be reflected in the space provided on the Bid Form for this work. However, do not submit alternatives other than those described in this Section. Amounts submitted for alternatives shall include all overhead, profit, bonds, insurance and similar related costs.

1.03 BASE BID

A. Includes all Work shown on Drawings or included in Specifications, excepting only that Work specifically noted in the following Alternate Bids, and that Work specifically noted as excepted.

PART 2. PRODUCT

2.01 DESCRIPTION

A. This Project consists of the Basic Bid and noted Alternates. The Contract Documents have been prepared to show both basic and alternate work. In case the alternate work is not included in the contract work it will be the Contractor's responsibility to construct basic work by excluding alternate work as described below. Revised drawings excluding alternate work will not be issued.

B. Work required by the following alternates shall include the finishing of all labor and materials to provide a complete and usable finished installation.

C. The extent of alternates is described on the Drawings or specified herein.

D. The Technical Specifications shall apply to all alternates unless modified herein.

2.02 LIST OF ALTERNATES

A. Alternate Number One: INCREASE INSULATION INDICATED BY 2- INCHES.

B. Alternate Number Two: INCREASE INSULATION INDICATED BY 4 1/4 INCHES.

C. Alternate Number Three: PROVIDE REPAIRS TO EXTERIOR METAL FACED PLYWOOD PANELS (MFPP) AND RELATED TRIMS.

D. Alternate Number Four: PROVIDE REPAIRS TO DAMAGED STORM DRAIN LINE BELOW EAST PARKING INCLUDING PAVEMENT REPAIRS.

PART 3. EXECUTION

3.01 ADVANCE COORDINATION

A. Immediately after award of the contract, or as soon thereafter as the Owner has made decision on which if any alternatives will be selected, thoroughly and clearly advise all necessary personnel and suppliers as to the nature and extent of alternatives selected by the Owner. Use all means necessary to alert those personnel and suppliers involved as to all changes in the work caused by the Owner's selection or rejection of alternatives.

END OF SECTION

PROJECT COORDINATION

PART 1. GENERAL

1.01 GENERAL CONTRACTOR

A. Coordinate work of his own employees and subcontractors and coordinate his work with that of other contractors and Owner.

B. Expedite his work to assure compliance with schedules.

C. Comply with orders and instructions of the Project Manager.

D. Monitor and control the use of site:

1. Supervise field engineering and site layout.
2. Allocate space for each subcontractor's use for field offices, sheds, work and storage areas.
3. Establish access, traffic, parking allocations, and regulations.

1.02 GENERAL AND SUBCONTRACTORS SHALL DILIGENTLY COMPLY WITH THE FOLLOWING:

A. Cooperate in planning and layout of the work well in advance of operations. Inform other contractors of requirements at proper time to prevent delay or revisions.

B. Be informed of the requirements of other contractors and check own work for conflicts with the work of others.

C. Ensure delivery of materials and performance of work on coordinated schedule with other contractors.

D. Be responsible for proper layout of the work, and for all lines and measurements for all of the work executed under the contract documents. Verify the figures shown on the drawings before laying out the work and report any inaccuracies in writing to the Project Manager before commencing work. The Owner, Architect or their representative will in no case assume the responsibility for layout of the work.

E. The mechanical and electrical trades shall be responsible for the layout of the ductwork, piping and conduits based on the reference lines established.

1.03 COORDINATING UTILITIES

A. Cooperate and coordinate work with all utilities to be installed for service to Project. Utilities may include, but are not limited to water, sewer, natural gas, telephone, electrical, and cable television. Contractor shall maintain communication with utilities in order to coordinate time and requirements of utilities' installation.

B. Contractor shall provide all work necessary to comply with requirements of Contract Documents for Utility work that does not meet Contract Document requirements, or for work that is disturbed by utility installation.

1.04 OWNER NOTIFICATION/REIMBURSEMENT

A. Provide the Owner forty-eight (48) hours advance notice of his intention to work overtime,

nights, Sundays or holidays, or anytime outside the usual working hours. In no case will the Contractor do any such work without first notifying the Owner to permit arrangements for proper inspection. Unless of an emergency nature, work performed in violation of this paragraph will not be paid for.

B. Reimburse the additional cost to the Owner for inspection work on Sundays or recognized holidays. Such reimbursement shall include all additional costs to the Owner.

C. Reimbursement for inspection or observation required of the Project Manager or the Engineer on Sundays or recognized holidays shall be at the rate of One Hundred Fifty dollars ($150.00) per man-hour of work.

D. The contractor shall reimburse the additional cost to the owner, architect and consultants for inspection work beyond a first substantial of first final completion inspections. The contractor is expected to be virtually complete at time of substantial completion inspection with only minor punchlist items remaining. Should punchlist items remain at time of final inspection and should subsequent inspections be required, the contractor shall pay all costs for all.

PART 2. PRODUCTS (NOT USED)

PART 3. EXECUTION (NOT USED)

END OF SECTION

CUTTING AND PATCHING

PART 1. GENERAL

1.01 DESCRIPTION OF WORK

A. Cutting and patching is defined to include, but it not necessarily limited to, the cutting and patching of nominally completed work, and is defined to exclude integral cutting and patching during the manufacturing, fabricating, erecting, and installing process for individual units of work.

B. Contractor shall be responsible for all cutting, fitting, and patching required to complete the work or to:

1. Accommodate the coordination of work.
2. Provide for installation of other work.
3. Remove and replace defective work.
4. Remove and replace work not conforming to requirements of Contract Documents.
5. Uncover other work for access or inspection.
6. Obtain samples for testing or similar purposes.
7. Provide routine penetrations of nonstructural surfaces for installation of piping and electrical conduit.

1.02 RELATED REQUIREMENTS

A. Section 00700 Article 4.14.

B. Section 01010 - Summary of Work.

C. Individual Specification Sections:

1. Cutting and patching incidental to work of the Section.
2. Advance notification to other Sections of openings required in work of those Sections.
3. Limitations on cutting structural members.

1.03 SUBMITTALS

A. Ten (10) days prior to beginning any demolition activities, the Contractor shall provide written notification to EPA, in accordance with NESHAP regulations, with copy to Project Manager. Notice shall indicate asbestos containing materials are or are not anticipated to be encountered. If no asbestos is anticipated, a negative declaration is made addressing 40CFR61.146 (a), (b) and (c,1-5).

B. Submit written request in advance of cutting or alteration which affects:

1. Structural integrity of any element of Project.
2. Integrity of weather-exposed or moisture-resistant element.
3. Efficiency, maintenance, or safety of any operational element.
4. Visual qualities of sight-exposed elements.
5. Work of Owner or separate contractor.

C. Include in Request:

1. Identification of Project.
2. Location and description of affected work.
3. Necessity for cutting and alteration.

4. Description of proposed work. Designate:

   a. Scope of cutting and patching.
   b. Contractor and trades to execute work.
   c. Products proposed to be used.
   d. Extent of refinishing.

5. Date and time work will be executed.

PART 2. PRODUCTS

2.01 MATERIALS

A. For replacement of work removed, comply with specifications for type of work to be done, unless otherwise noted.

B. Provide materials for cutting and patching which will result in equal to or better than the work being cut and patched in terms of performance characteristics and visual effect where applicable.

PART 3. EXECUTION

3.01 GENERAL

A. Execute cutting, fitting, and patching to complete Work, and to:

1. Fit the several parts together, to integrate with other Work.
2. Uncover work to install or correct ill-timed Work.
3. Remove and replace defective and non-conforming Work.
4. Remove samples of installed Work for testing.
5. Provide openings in elements of Work for penetrations of mechanical and electrical work.
6. Repair surfaces damaged by removal or relocation of surface mounted or built-in items.

3.02 INSPECTION

A. Inspect existing conditions, including elements subject to damage or movement during cutting and patching.

B. Do not cut and patch work which is exposed to view in a manner resulting in a reduction of visual qualities or resulting in substantial evidence of the cut and patch work. Remove and replace work judged by Project Manager to be visually unsatisfactory.

C. After uncovering, inspect conditions affecting performance of work.

D. Beginning of cutting or patching means acceptance of existing conditions.

3.03 PREPARATION

A. Clean adjacent structures and improvements of dust, dirt, and debris caused by cutting and patching operations, as directed. Return adjacent areas to condition existing prior to start of work.

B. Provide supports to assure structural integrity of surroundings; devices and methods to protect other portions of Project from damage.

C. Provide protection from elements for areas which may be exposed by uncovering work; maintain openings free of water.

3.04 PERFORMANCE

A. Execute work by methods to avoid damage to other work, and which will provide proper surfaces to receive patching and finishing.

B. Restore work with new products in accordance with requirements of Contract Documents.

C. Fit work airtight to pipes, sleeves, ducts, conduit, and other penetrations through surfaces. Maintain all fire assembly rating wall or area separation construction in accordance with applicable codes.

D. Refinish surfaces to match adjacent finishes. For continuous surfaces, refinish to nearest intersection; for an assembly, refinish entire unit.

END OF SECTION

MECHANICAL AND ELECTRICAL COORDINATOR

PART 1. GENERAL

1.01 DESCRIPTION

A. Mechanical and electrical coordinator.

B. Submittals.

C. Coordination required.

D. Coordination documents.

E. Coordination of submittals.

F. Coordination of substitutions and modifications.

G. Observation of Work.

H. Documentation.

I. Inspection and acceptance of equipment.

J. Equipment start-up.

1.02 RELATED SECTIONS

A. Section 01010 - Summary of Work.

B. Section 01300 - Submittals: Shop drawings, product data, and samples.

C. Section 01650 - Starting of Systems: Starting of systems. Testing, Adjusting, and Balancing of Systems. Systems Demonstration.

D. Section 01700 - Project Closeout: Project closeout procedures, project record documents, operation and maintenance data, warranties, and spare parts and maintenance materials.

1.03 MECHANICAL AND ELECTRICAL WORK COORDINATOR

A. The Contractor shall employ a person, technically qualified and administratively experienced in field coordination for the mechanical and electrical work required for this Project, for the duration of the Work.

1.04 SUBMITTALS FOR REVIEW

A. Submit coordination drawings and schedules prior to submitting shop drawings, product data, and samples.

1.05 COORDINATION REQUIRED

A. Coordinate work of Divisions 23, and 26 and with work of other divisions.

B. Coordinate progress schedules, including dates for submittals and for delivery of Products.

C. Participate in progress meetings. Report on progress of Work to be adjusted under coordination requirements, and any required changes in schedules. Transmit minutes of meetings and Reports to concerned parties.

1.06 COORDINATION DOCUMENTS

A. Prepare coordination drawings to organize installation of Products for efficient use of available space, for proper sequence of installation, and to identify potential conflicts.

B. Identify electrical power characteristics and control wiring required for each item of equipment.

C. Maintain documents for the duration of the Work, recording changes due to site instructions, modifications or adjustments.

D. After the Anchorage School District's review of original and revised documents, reproduce and distribute copies to concerned parties.

1.07 COORDINATION OF SUBMITTALS

A. Review Shop Drawings, Product Data, and Samples for compliance with Contract Documents and for coordination with work of the Project Manual. Transmit for review, copy reviewed documents to the Anchorage School District.

B. Check field dimensions and clearances and relationship to available space and anchors.

C. Check compatibility with equipment and Work of other sections, electrical characteristics, and operational control requirements.

D. Check motor voltages and control characteristics.

E. Coordinate controls, interlocks, wiring of pneumatic switches, and relays.

F. Coordinate wiring and control diagrams.

G. Review the effect of any changes on work of other sections.

H. Verify information and coordinate maintenance of record documents.

1.08 COORDINATION OF SUBSTITUTIONS AND MODIFICATIONS

A. Review proposals and requests from Subcontractors.

B. Verify compliance with Contract Documents and for compatibility with Work and Products of other sections. Submit with recommendation for action.

1.09 OBSERVATIONS OF WORK

A. Observe Work for compliance with Contract Documents.

B. Maintain a list of observed deficiencies and defects; promptly submit a written report bi-weekly.

1.10 DOCUMENTATION

A. Observe and maintain a record of tests. Record:

1. Specification section number.
2. Product and name of Subcontractor.
3. Name of testing agency and name of inspector.
4. Name of manufacturer's representative present.
5. Date, time, and duration of tests.
6. Type of test, and results. Retesting required.
7. Submit copies of documentation to the Anchorage School District.

1.11 EQUIPMENT START-UP

A. Verify utilities, connections, and controls are complete and equipment is in operable condition as required by Section 01650.

B. Observe start-up and adjustments; record time and date of start-up, and results.

C. Observe equipment demonstrations to Owner; record times and additional information required for operation and maintenance manuals.

1.12 INSPECTION AND ACCEPTANCE OF EQUIPMENT

A. Prior to inspection, verify that equipment is tested, operational, clean, and ready for operation.

B. Assist the Anchorage School District with review. Prepare list of items to be completed and corrected.

PART 2. PRODUCTS (NOT USED)

PART 3. EXECUTION (NOT USED)

END OF SECTION

FIELD ENGINEERING

PART 1. GENERAL

1.01 REQUIREMENTS INCLUDED

A. Provide and pay for field engineering services required for project, i.e., civil, structural, or other professional engineering services required to execute Contractor's construction methods.

1.02 RELATED REQUIREMENTS

A. Conditions of the contract.

B. Section 01010: Summary of Work.

C. Section 01700: Project Close Out.

1.03 QUALIFICATIONS OF SURVEYOR AND ENGINEER

A. Provide Qualified Professional Engineer and Registered Land Surveyor with current Alaska license and acceptable to Contractor and Owner.

1.04 SURVEY REFERENCE POINTS

A. Locate and protect benchmarks, monuments, and other control points prior to starting site work, preserve all permanent points during construction.

1. Make no changes or relocations without prior written notice to Project Manager.
2. Report to Project Manager when any reference point is lost, destroyed or required relocation because of necessary changes in grades or locations.
3. Require surveyor to replace project control points which may be lost or destroyed and establish replacements based on original survey control.

1.05 PROJECT SURVEY REQUIREMENTS

A. Establish a minimum of two permanent benchmarks on site, referenced to data established by survey control points.

B. Record locations, with horizontal and vertical data, on Project Record Documents.

C. Establish and identify lines, levels, contours, and datum by instrumentation or similar appropriate means for:

1. Stakes for grading, fill, and topsoil placement.
2. Utility slopes and invert elevations.
3. Batter boards for structures.
4. Building foundation, column locations, and floor levels.
5. Controlling lines and levels required for mechanical and electrical trades.

D. From time to time, verify layouts by same methods.

1.06 RECORDS

A. Maintain a complete, accurate log of all control and survey work as it progresses.

1.07 SUBMITTALS

A. Submit name and address of Surveyor and Professional Engineer to Project Manager.

B. On request of Project Manager, submit documentation to verify accuracy of field engineering work.

C. Submit certificate signed by Registered Engineer and Surveyor certifying that elevations and locations of improvements are in conformance with Contract Documents in the form of an “As-Built” survey.

PART 2. PRODUCTS (NOT USED)

PART 3. EXECUTION (NOT USED)

END OF SECTION

REGULATORY REQUIREMENTS

PART 1. GENERAL

1.01 BUILDING CODES

A. Construction which is not governed by a local building code or the Contract Specifications will be governed by the more stringent provisions of the latest published edition of Statute adopted edition with MOA local amendments, of the following applicable codes and regulations:

1. International Building Code (IBC)
2. International Existing Building Code (IEBC)
3. International Energy Conservation Code (IECC)
4. International Fuel Gas Code (IFGC)
5. International Mechanical Code (IMC)
6. International Fire Code (IFC)
7. National Electrical Code (NEC)
8. Uniform Plumbing Code (UPC)
9. ASHRAE 90-75 as applicable to Alaska
10. National Fire Code, Volumes 1-10
11. National Electrical Safety Code
12. NFPA Life Safety Code
13. NFPA National Fire Code
14. ADA Guidelines
15. Accessible and Useable Buildings and Facilities (ICC/ANSI A117.1)

1.02 APPLICABLE STANDARDS

A. Where indicated, comply with the requirements and recommendations of the standards and other publications, except to the extent more detailed or more stringent requirements are indicated, including those of applicable codes and governing regulations.

B. Where two or more standards or recommendations of trade associations apply to the same quality control requirement for the work, comply with the most stringent. Refer uncertain instances to the Project Manager for a decision.

PART 2. PRODUCTS (NOT USED)

PART 3. EXECUTION (NOT USED)

END OF SECTION

ABBREVIATIONS AND DEFINITIONS

PART 1. GENERAL

1.01 ABBREVIATIONS

A. References in the contract documents to publications and recommendations by either name or abbreviation thereof include but are not necessarily limited to the following trade associations, technical societies, government agencies, recognized authorities and standards.

AAMA	Architectural Aluminum Manufacturers Association
AASHTO	American Association of State Highway and Transportation Officials
ACI	American Concrete Institute
AGA	American Gas Association
AGC	The Associated General Contractors of America
AI	The Asphalt Institute
AIA	The American Institute of Architects
AISC	American Institute of Steel Construction, Inc.
AISI	American Iron and Steel Institute
AITC	American Institute of Timber Construction
ANSI	American National Standards Institute
APA	American Plywood Association
ASAHC	American Society of Architectural Hardware Consultants
ASHRAE	American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc.
ASME	American Society of Mechanical Engineers
ASTM	American Society for testing and Materials
AWI	Architectural Woodwork Institute
AWPA	American Wood-Preservers' Association
AWPB	American Wood-Preservers' Bureau
AWS	American Welding Society, Inc.
CPSC	Consumer Product Safety Commission
CRA	California Redwood Association
CRSI	Concrete Reinforcing Steel Institute
CS	Commercial Standard of NBS (U.S. Department of Commerce)
CSI	The Construction Specifications Institute, Inc.
EPA	Environmental Protection Agency
FM	Factory Mutual Engineering Corp.
FGMA	Flat Glass Marketing Association
FS	Federal Specification (General Services Administration)
GA	Gypsum Association
HPMA	Hardwood Plywood Manufacturers Association
IBC	International Building Code
MFMA	Maple Flooring Manufacturers Association
MLMA	Metal Lath/Manufacturers Association
NAAMM	The National Association of Architectural Metal Manufacturers
NBFU	National Board of Fire Underwriters
NBHA	National Builders Hardware Association
NBS	National Bureau of Standards (U.S. Department of Commerce)
NEC	National Electrical Code by NFPA
NEMA	National Electrical Manufacturers Association
NFPA	National Fire Protection Association
N.F.P.A.	National Forest Products Association
NRCA	National Roofing Contractors Association

NSF	National Sanitation Foundation
NWMA	National Woodwork Manufacturers Association, Inc.
OSHA	Occupational Safety and Health Administration
PCA	Portland Cement Association
PCI	Prestressed Concrete Institute
RIS	Redwood Inspection Service (Grading Rules)
SDI	Steel Deck Institute
S.D.I.	Steel Door Institute
SIGMA	Sealed Insulating Glass Manufacturers Association
SJI	Steel Joist Institute
SMACNA	Sheet Metal and Air Conditioning Contractor's National Association, Inc.
SPR	Simplified Practice Recommendation of NBS
SSPC	Steel Structures Painting Council
TCA	Tile Council of America, Inc.
UL	Underwriters' Laboratories, Inc.
WCLA	West Coast Lumbermen's Association
WCLB	West Coast Lumber Inspection Bureau (Grading Rules)
WRI	Wire Reinforcing Institute
WWPA	Western Wood Products Association (Grading Rules)
W.W. P.A.	Woven Wire Products Association

B. Refer to individual sections for other names and abbreviations of trade associations and standards applicable to specific portions of the work. In particular, refer to Divisions 23 and 26 for names and abbreviations applicable to mechanical and electrical work.

1.02 SPECIFICATION EXPLANATION

A. The specifications are divided into divisions and sections for the convenience of writing and using. The titles of these are not intended to imply a particular meaning nor to fully describe the work of each division or section, nor to define the limits of any subcontract.

B. These specifications are of the abbreviated, or "streamlined" type, and may include incomplete sentences.

C. Omissions of words or phrases such as "the Contractor shall", "in conformity therewith", "shall be", "as noted on the drawings", "according to the plans", "a", "an", "the", and "all" are intentional.

D. Omitted words or phrases shall be supplied by inference in the same manner as they are when a "note" occurs on the drawings.

1.03 DEFINITIONS

A. Certain terms used generally throughout the specifications (and drawings) are hereby defined as follows:

1. Indicated: A cross reference to details, notes or schedules on the drawings, other paragraphs or schedules in the specifications, and similar means of recording requirements in the contract documents. Where terms such as "shown", "noted", "scheduled", and "specified" are used in lieu of "indicated", it is for the purpose of helping the reader accomplish the cross reference, and no limitation of location is intended except as specifically noted.
2. Installer: The person or entity engaged by the Contractor or his Subcontractor or Sub-subcontractor for the performance of a particular unit or work at the project site, including installation, erection, application, and similar required operations. It

is a general requirement that installers be recognized experts in the work they are engaged to perform.

3. Furnish: Except as otherwise defined in greater detail, the term “furnish” is used to mean “...supply and delivery to the project site, ready for unpacking, assembly and installation...”.
4. Provide: Except to the extent further defined, the term “provide” means to furnish and install, complete and ready for the intended use.

1.04 DRAWINGS, DIMENSIONS AND MEASUREMENTS

A. Where on any of the drawings a portion of the work is drawn out and the remainder is indicated in outline, the parts drawn out shall apply also to all other portions of the work.

B. Wherever a detail is referenced and developed for a specific condition, same or similar detail shall apply to identical or similar conditions elsewhere on project even though not specifically referenced.

C. Where the word “similar” occurs on the drawings, it shall be interpreted in its general sense and not as meaning identical, and all details shall be worked out in relation to their location and their connection with other parts of the work.

D. The figured dimensions on the drawings or notes indicating dimensions shall be used instead of measurements of the drawings by scale and shall be strictly complied with.

E. No scale measurements shall be used as a dimension to work with except on “full size” drawings not dimensioned.

PART 2. PRODUCTS (NOT USED)

PART 3. EXECUTION (NOT USED)

END OF SECTION

REFERENCED SPECIFICATIONS AND STANDARDS

PART 1. GENERAL

1.01 QUALITY ASSURANCE

A. For products or workmanship specified by Referenced Specification or Standard, comply with requirements of the specification or standard, except when more rigid requirements are specified or are required by governing codes.

B. Except where a specific date is specified, the date of the referenced specification standard is that in effect as of the bid date.

C. Obtain a copy of all Referenced Specifications and Standards and maintain at Jobsite during the specific work until Substantial Completion of the Project.

1.02 SCHEDULE OF REGULATORY AGENCY REFERENCES

A.	AASHTO	American Association of State Highway and Trans. Officials 444 North Capitol Street, N.W. Washington, DC 20001
B.	AAC	Anchorage Administrative Code (and Local Amendments) Municipality of Anchorage 4700 Elmore Rd Anchorage, AK 99507
C.	ADA	Americans with Disabilities Act The Disabilities Rights Section Civil Rights Division P.O. Box 66738 Washington, DC 20035-6738
D.	ANSI	American National Standards Institute 1430 Broadway New York, NY 1018
E.	ASA	American Standards Association Now known as ANSI (See above)
F.	ASTM	American Society for Testing Materials 1916 Race Street Philadelphia, PA 19103
G.	ATBCB	The U.S. Architectural and Transportation Barrier Compliance Board Suite 1000, 131 F St. NW Washington, DC 20004-1111
H.	CS	Commercial Standards of the Commodities Division of the Department of Commerce Washington, DC 20006
I.	FM	Factory Mutual Engineering and Research Corporation P. O. Box 688 Norwood, MA 02062
J.	F.S.	Federal Specifications of the United States General Services Administration Specifications and Consumer Information Distribution Section (WFSIS)

Washington, DC 20407

K. IBC — International Building Code published by the International Code Council (ICC)
4051 West Flossmoor Road
Country Club Hills, IL 60478-5795

L. IEBC — International Existing Building Code
Published by ICC (See IBC above)

M. ICC/ANSI A117.1-2003
Accessible and Usable Buildings and Facilities
Published by ICC (See IBC above)

N. IECC — International Energy Conservation Code
Published by ICC (See IBC above)

O. IFC — International Fire Code
Published by ICC (See IBC above)

P. IFGC — International Fuel Gas Code
Published by ICC (See IBC above)

Q. IMC — International Mechanical Code
Published by ICC (See IBC above)

R. MOA — Municipality of Anchorage MASS Specifications
Public Works Dept.
4700 Elmore Rd
Anchorage, AK 99507

S. NBFU — National Bureau of Fire Underwriters
85 John Street
New York, NY 10017

T. NEC — National Electric Code published by the National Fire Protection Association
(See NFPA below)

U. NFPA — National Fire Protection Association
Battery March Park
Quincy, MA 02269

V. PS — Product Standards of the Commodities
Division of the Department of Commerce
Washington, DC 20203

W. UPC — Uniform Plumbing Code
Published by IAPMO
5001 East Philadelphia Street
Ontario, CA 91761-2816

X. UL — Underwriter's Laboratories
333 Kingston Road
Northbrook, IL 60062

Y. State of AK — State of Alaska Amendments
Fire and Life Safety Regulations
Juneau, AK

1.03 TRADE ASSOCIATION REFERENCES

A. See specific specification sections.

PART 2. PRODUCTS (NOT USED)

PART 3. EXECUTION (NOT USED)

END OF SECTION

ALTERATION PROCEDURES

PART 1. GENERAL

1.01 DESCRIPTION OF WORK

A. Part of alteration work may expose portions of the building to the elements. During such periods Contractor shall take all necessary precautions to protect building elements to remain. Any damage due to negligence shall be repaired at no cost to the Owner.

B. In addition to Cutting and Patching (Section 01045) and cut, move, or remove items as necessary to provide access or to allow alterations and new work to proceed. Include such items as:

1. Repair or removal of hazardous or unsanitary conditions.
2. Removal of abandoned items and items serving no useful purpose such as abandoned piping, conduit, and wiring.
3. Removal of unsuitable or extraneous materials not marked for salvage, such as abandoned furnishings and equipment, and debris such as rotted wood, rusted metals, and deteriorated concrete.
4. Cleaning of surfaces, and removal of surface finishes as needed to install new work and finishes.

1.02 RELATED REQUIREMENTS

A. Section 00700 and 00800 - General and Supplementary General Conditions.

B. Section 01045 - Cutting and Patching.

C. Section 01300 - Submittals.

D. Section 01500 - Temporary Facilities and Controls.

1.03 COORDINATION

A. Coordinate scheduling, submittals, and Work of the various Sections of Specifications to assure efficient and orderly sequence of installation of interdependent construction elements, with provisions for accommodating items installed later.

B. Verify that utility requirement characteristics of operating equipment are compatible with building utilities. Coordinate work of various Sections having interdependent responsibilities for installing, connecting to, and placing in service, such equipment.

C. Coordinate space requirements and installation of mechanical and electrical work which are indicated diagrammatically on Drawings. Follow routing shown for pipes, ducts, and conduit, as closely as practicable; place runs parallel with line of building. Utilize space efficiently to maximize accessibility for other installations, for maintenance, and for repairs.

D. In finished areas, except as otherwise indicated, conceal pipes, ducts, and wiring within the construction. Coordinate locations of fixtures and outlets with finish elements.

E. Coordinate completion and cleanup of Work of separate sections in preparation for Substantial Completion.

F. After Owner occupancy of premises, coordinate access to site for correction of defective

Work and Work not in accordance with Contract Documents, to minimize disruption of Owner's activities.

PART 2. PRODUCTS

2.01 ALTERATION PROJECT PROCEDURES

A. Materials: As specified in Product Sections; match existing Products and work for patching and extending work.

B. Close openings in exterior surfaces to protect existing work from weather and extremes of temperature and humidity.

C. Remove, cut, and patch Work in a manner to minimize damage and to provide a means of restoring Products and finishes to specified condition.

D. Refinish visible existing surfaces to remain in renovated rooms and spaces, to specified condition for each material, with a neat transition to adjacent finishes.

E. Where new Work abuts or aligns with existing, perform a smooth and even transition. Patched Work to match existing adjacent Work in texture and appearance.

F. When finished surfaces are cut so that a smooth transition with new work is not possible, terminate existing surface along a straight line at a natural line of division and make recommendation for Project Manager review and approval.

G. Where a change of plane of 1/8 inch or more occurs, submit recommendation for acceptable transition for Project Manager review and approval.

H. Patch or replace portions of existing surfaces which are damaged, lifted, discolored, or showing other imperfections.

I. Finish surfaces as specified in individual Product Sections.

PART 3. EXECUTION (NOT USED)

END OF SECTION

PROJECT MEETINGS

PART 1. GENERAL

1.01 DESCRIPTION

A. Work Included:

1. In general, project meetings will be held weekly at the job site in accordance with a mutually acceptable schedule. The Project Manager will conduct project meetings throughout the construction period.
2. The purpose of the project meetings is to enable orderly review of progress during construction and to provide for systematic discussion and analysis of problems that might arise between the Owner, Project Architect, Project Manager and/or Contractor relative to execution of the work.

B. Related Work described elsewhere:

1. The Contractor's relations with his subcontractors and material suppliers, and discussions relative thereto, are the Contractor's responsibility as described in the General Conditions and are not part of project meetings content.
2. Section 01400 describes the requirements for quality control meetings that will be held in addition to the requirements of this section.

1.02 AUTHORITY DESIGNATION

A. Persons designated by the Contractor to attend and participate in project meetings shall have all required authority to commit the Contractor to solutions as agreed upon in the project meetings.

1.03 SUBMITTALS

A. Agenda Items:

To the maximum extent possible, advise the Project Manager forty-eight (48) hours in advance of the project meeting regarding all agenda items to be discussed, including tours in advance of the meeting.

1.04 AGENDA

A. Preconstruction Meeting

1. The Project Manager will conduct this meeting within fifteen (15) days after date of Notice to Proceed.
2. Location:

   Anchorage School District
   Capital Planning & Construction
   1301 Labar Street
   Anchorage, Alaska 99515
   (907) 348-5190

3. Attendance:

   a. ASD Construction Supervisor
   b. ASD Project Manager

c. Architect and his Professional Consultants
d. Contractor's Project Manager and Superintendent
e. Major Subcontractors, as appropriate
f. Major Suppliers, as appropriate
g. Others as appropriate

4. Agenda items will include, but not be limited to:

a. Designation of responsible personnel
b. Distribution (by Contractor) and discussion of list of major Subcontractors and Suppliers with addresses and telephone numbers
c. Project coordination
d. Procedures and processing of:

(1) Field decisions
(2) Submittals
(3) Proposal requests
(4) RFI's Change Orders
(5) Applications for Payment
(6) Schedules and Reports

e. Discussion of initial Project Schedule
f. Critical work sequencing
g. Major equipment deliveries and priorities
h. Adequacy of Contract Documents distribution
i. Procedures for maintaining Record Documents
j. Use of premises:

(1) Office, work, and storage area
(2) Owner's requirements

k. Construction facilities, controls, and construction aids
l. Temporary utilities
m. Safety and first-aid procedures
n. Security procedures
o. Housekeeping procedures

B. Progress Meetings:

1. The Project Manager will conduct weekly meetings as required, at the Project Site to coordinate the work, answer questions, and resolve problems.
2. Meeting Agenda will include but not be limited to:

a. Attendees:
List of attendees and company they represent
b. Minutes Review:
Corrections, additions, and/or deletions to previous minutes
c. Outstanding Action Items:
Review of items not resolved from previous meeting
d. Submittal status
e. Request for Information status
f. Request for Proposal Status
g. Schedule Review:
h. Project job concerns
i. Next meeting
j. Summarize and Review of all Action Items:

3. All items to be discussed shall be addressed at the time scheduled on the agenda. All attendees shall familiarize themselves with the agenda and be prepared in

advance with their items for discussion.

C. Special Meetings:

The Project Manager may call special meetings at the project site or the office of the Project Manager to coordinate the work, answer questions, and resolve problems.

1.05 MINUTES

A. The Project Manager will compile minutes of each project meeting and will distribute copies to all interested parties within seven (7) calendar days after the meeting. Items in the minutes shall be numbered consecutively and grouped under divisions and sections. Each item shall be carried forward until resolved.

B. The minutes compiled by the Project Manager will be the official record minutes and all clarifications and/or corrections shall be transmitted in writing to the Project Manager within fourteen (14) days of date of receipt of the minutes or unless noted during the next scheduled meeting under the appropriate agenda item. Transmitted corrections shall be legibly submitted on company letterhead.

C. At least one (1) bound volume of all minutes shall be maintained by the Contractor in the job office until project completion.

PART 2. PRODUCTS (NOT USED)

PART 3. EXECUTION (NOT USED)

END OF SECTION

SUBMITTALS

PART 1. GENERAL

1.01 REQUIREMENTS INCLUDED

A. Procedures

B. Construction Progress Schedules

C. Schedule of Values

D. Shop Drawings

E. Product Data

F. Samples

G. Manufacturer’s Instructions

H. Manufacturer’s Certificates

1.02 RELATED REQUIREMENTS

A. Section 01010 - Summary of Work

B. Section 01311 - Project Schedule

C. Section 01340 - Shop Drawings, Product Data and Samples

D. Section 01370 - Schedule of Values

E. Section 01400 - Quality Control

F. Section 01630 - Substitution and Product Options

G. Section 01700 - Project Close Out

H. Section 01710 - Cleaning

I. Section 01720 - Project Record Documents

J. Section 01730 - Operating and Maintenance Data

K. Section 01750 - Closeout Forms

1.03 PROCEDURES

A. Deliver submittal documents to the Project Manager using the ASD Procore Construction Management Program. Number each submittal with the section number, dash, numerical order of the submittal, example 03300-1. Add an alpha to each resubmittal, example, 03300-1A. Deliver samples to the Project Manager or Architect as directed to the address listed on the cover of the project manual.

B. Transmit each item with company submittal. Identify Project, Contractor, subcontractor, major supplier; identify pertinent Drawing sheet and detail number and specification section number, as appropriate. Identify deviations from Contract Documents. Provide space for Contractor and Architect/Engineer review stamps.

C. Submit initial progress schedules and schedule of values in duplicate prior to issuance of Notice to Proceed. After review by the Architect/Engineer, revise and resubmit as required. Submit revised schedules with each application for payment, reflecting changes since previous submittal.

D. Comply with progress schedule for submittals related to work progress. Coordinate submittal of related items.

E. Distribute copies of reviewed submittals to concerned persons. Instruct recipients to promptly report any inability to comply with provisions. Review with subconsultants/suppliers any inability to meet requirements of project. Find solutions with subconsultants/suppliers making conformance with documents possible. Review solutions with owner and architect for acceptance prior to proceeding with work.

1.04 CONSTRUCTION PROGRESS SCHEDULES

A. Submit Project Schedule as called for in Section 01311, Project Schedule.

1.05 SCHEDULE OF VALUES

A. Submit Schedule of Values as called for in Section 01370, Schedule of Values.

1.06 SHOP DRAWINGS, PRODUCT DATA & SAMPLES

A. Submit in the form as called for in Section 01340.

1.07 MANUFACTURERS' INSTRUCTIONS

A. When required, in individual specification section, submit manufacturers printed instructions for delivery, storage, assembly, installation adjusting and finishing, in quantities specified for product data.

1.08 FIELD SAMPLES

A. Provide field samples of finishes at project site as required by individual specification sections. Install sample complete and finishes. Acceptable samples in place may be retained in completed work.

PART 2. PRODUCTS (NOT USED)

PART 3. EXECUTION (NOT USED)

END OF SECTION

PROJECT SCHEDULE

PART 1. GENERAL

1.01 GENERAL REQUIREMENTS

A. The work under this Section consists of Project Schedule ("Schedule") requirements including the preparation of a Schedule and Schedule Revisions. The Schedule shall be developed by the Contractor and shall be in accordance with the requirements of this Section 01311. No direct payment will be made to the Contractor for performing and complying with the requirements of this Section 01311.

B. The Schedule will be prepared by the Contractor for this Project and made available to the Owner. It is intended that the Schedule will reflect the Contractor's actual construction plan. The existence of schedules, networks, vector charts or any other charts or services, shall in no way relieve the Contractor of the responsibility of the Contract Document including, but not limited to the responsibility of completing the Work within the contract time and the responsibility of planning, scheduling and coordinating the Work.

C. The Schedule shall be in the form of a bar chart or other format approved by the project manager.

1.02 REFERENCES

A. Associated General Contractors of America, "Construction Planning & Scheduling," Copyright January 1994 (AGC's Manual), also referred to as AGC Publication No. 1107.1. The general principles stated in the AGC's Manual shall be used in preparing and updating the Project Schedule, except that the requirements of this Section shall govern.

B. Related Requirements:

1. Section 00700 and 00800 - General Conditions and Supplementary General Conditions
2. Section 00200 - Project Schedule Milestones Dates
3. Section 01370 - Schedule of Values

PART 2. PRODUCTS

2.01 PROJECT SCHEDULE

A. Within fourteen (14) calendar days following the Notice to Proceed, the Contractor shall submit for the Project Manager's review, comment and acceptance, a Project Schedule ("Schedule"). The Schedule shall show the activities of work in sufficient detail to demonstrate that the Contractor has a reasonable and workable plan to complete the Project in accordance with the Project Schedule Milestone Dates set forth under Section 00200 of the Contract Documents. The Contractor shall submit two (2) prints of the Schedule, which shall be neatly organized and time scaled from left to right on 11 in. x 17 in. sheets, or 24 in. x 36 in. sheets, at the Contractor's discretion.

B. Within five (5) calendar days of receipt of the Schedule, the Project Manager shall meet face to face with the Contractor to review the plan and to determine if there are any concerns regarding the Contractor's plan to execute the work. If a resubmittal of the Schedule is required by the Project Manager, the Contractor shall revise and resubmit the Schedule incorporating the Project Manager's comments within seven (7) calendar days after this review meeting. Progress payments will be withheld until the Contractor submits an approvable Schedule.

C. Revisions to the Schedule shall be done in accordance with paragraph 2.02.

2.02 PROJECT SCHEDULE REVISIONS

A. Should the Contractor, after acceptance of the Schedule, desire to change his plan of construction, he shall submit his proposed revisions to the Project Manager, along with a written rationale for the revisions. Only the requested changes accepted by the Project Manager will be incorporated into the Schedule in the next reporting period.

2.03 TIME IMPACT ANALYSIS FOR CONTRACT MODIFICATIONS, CHANGES OR DELAYS

A. If the Contractor believes that a change under Article 12 Paragraph 12.1 causes an increase or decrease in the Contractor's time for completing the Work, he shall complete a Time Impact Analysis that demonstrates how the Contractor proposes to incorporate or has incorporated the Change into the Schedule and the time impact, if any, on the Schedule Milestone Dates set forth under Section 00200 of the Contract Documents.

1. The Time Impact Analysis shall demonstrate the time impact based upon the date the Change in Work is directed by the Project Manager; the status of construction at that point in time; and the event time computations of all affected activities. The event times used in the Time Impact Analysis shall be those set forth in the update of the Schedule in effect at the time the Change in Work is directed by the Project Manager.
2. The Time Impact Analysis is based on an "as-planned" to "as-built" comparison of the event times. In developing an as-built schedule of performance, the Contractor shall utilize actual daily performance data from Schedule Updates and the Contractor's daily construction reports to graphically depict the sequence and manner in which the Contractor actually performed the Work under the Contract.

B. Activity delays shall not automatically mean that an extension of the Contract Time is warranted or due the Contractor. It is possible that a modification, change or delay will not affect projected or as-built critical activities or cause non-critical activities to become critical. A modification, change or delay may result in only absorbing a portion of the available total float that may exist within an activity chain of the Schedule, thereby not causing any effect on the Contract Time.

C. Each Time Impact Analysis shall be submitted as follows:

1. Within fourteen (14) calendar days after receipt of a written order designated or indicated to be a change in accordance with Article 12, Changes in the Work;
2. Within fourteen (14) calendar days after the furnishing of written notice by the Contractor;
3. Within fourteen (14) calendar days from the commencement of a delay related to unforeseeable conditions; provided the Contractor complies with the requirements of the Contract Documents regarding said condition.

D. In cases where the Contractor does not submit a written request for extension of time and Time Impact Analysis within the time stated above in Paragraph 2.03, it is mutually agreed that the Change in the Work does not require an extension of the Contract Time.

E. Acceptance or rejection of each Time Impact Analysis which requests an extension of the Contract Time shall be made by the Project Manager within fourteen (14) calendar days after receipt of each Time Impact Analysis, unless subsequent meetings and negotiations are necessary. Upon acceptance, the Time Impact Analysis shall be incorporated into the Schedule.

F. Time Impact Analysis related to requests for an extension of the Contract Time and/or Change Order work shall be incorporated into and attached to the applicable Change Order(s).

G. No revision to any Schedule Milestone Date or contractually mandated schedule provisions will be permitted without authorization from the Project Manager.

2.04 COMPLIANCE WITH THE SCHEDULE

A. The Contractor shall furnish sufficient labor and equipment resources, offices, and facilities, and shall work such hours, including night shift and overtime operations as necessary, to ensure the prosecution of the Work in accordance with the Schedule. If the Contractor falls behind in meeting the Schedule, the Contractor shall take such steps as may be necessary to improve its progress. If the Contractor fails to take such steps, the Project Manager may require the Contractor to increase the hours of work, the number of shifts, overtime operations, the number of workers and/or the amount of construction plant and equipment without additional cost to the Owner. The provisions of this subsection shall not be construed as prohibiting work on Saturdays, Sundays, and holidays, if the Contractor so elects and gives 24 hours' notice to the Project Manager.

B. Failure of the Contractor to comply with the requirements of this Subsection 2.04 shall be a basis for determination by the Project Manager that the Contractor is not prosecuting the Work with such diligence as will ensure completion of the Work in accordance with the requirements of the Contract Documents. Upon such determination, the Project Manager may terminate the Contractor's right to proceed with the Work or any separable part thereof, in accordance with the clause entitled "Termination of Contract" of the Contract Documents, or may take such other actions as he may deem appropriate.

PART 3. EXECUTION (NOT USED)

END OF SECTION

SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES

PART 1. GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

1.02 DESCRIPTION

A. Prepare and submit to the Project Manager with the Construction Schedule, a separate schedule listing dates for submission and of review for shop drawings, product data, and samples, refer to General Conditions 4.12.13.1. Include installing Subcontractors name responsible for that portion of the Work

B. Submit Shop Drawings, Product Data, and Samples as may be required, whether mentioned specifically in Contract Documents or not.

C. Individual submittals shall not include material covering more than one section of the specifications.

D. Products fabricated and/or installed prior to approval of submittals are subject to demand for removal and replacement with approved products by the Contractor at no additional cost to the Owner.

E. Shop drawing submittal cannot be used for product substitution submittal. See Section 01630 for required procedure.

1.03 RELATED REQUIREMENTS

A. Section 01311: Project Schedule

B. Section 01630: Substitution and Product Options

C. Section 01720: Project Record Documents

1.04 SHOP DRAWINGS

A. Prepare original drawings (by Contractor, subcontractor, manufacturer, supplier, or distributor), which illustrate some portion of the work; showing fabrication, layout, setting or erection details.

B. Prepare shop drawings for this particular project. Drawings prepared for other projects and revised for this project will be rejected.

C. When necessary, base shop and setting drawings upon actual measurements taken at site and other job conditions. Show any variations and revisions to Contract Documents that are necessary for proper installation of work. Fabrication or installation of work shall not be started until shop or setting drawings have been reviewed and returned by Architect, with his stamp and comments.

D. Identify details by reference to sheet and detail, schedule or room numbers shown on Contract Drawings.

E. Minimum sheet size: 8 ½" x 11". Note: Submit fill-size sheet submittals. Use of 8 ½" x 11" format subject to readability and approval of architect.

1.05 PRODUCT DATA

A. Manufacturer's standard schematic drawings:

1. Modify drawings to delete information which is not applicable to project.
2. Supplement standard information to provide additional information applicable to project.

B. Manufacturer's catalog sheets, brochures, diagrams, schedules, performance charts, illustrations, and other standard descriptive data.

1. Clearly mark each copy and identify pertinent materials, products or models.
2. Show dimensions and clearances required.
3. Show performance characteristics and capacities.
4. Show wiring diagrams and controls.
5. Catalog cuts and descriptive data sheets shall include a complete listing of repair and replacement parts for all equipment and the name and address of a source of supply for parts and service.

1.06 SAMPLES

A. Physical examples to illustrate materials, equipment or workmanship and to establish standards by which completed work is judged.

B. Office Samples: Of sufficient size and quantity to clearly illustrate:

1. Functional characteristics of product or material, with integrally related parts and attachment devices.
2. Full range of color, texture and pattern.

C. Field Samples and Mock-Ups:

1. Erect at project site at location acceptable to Project Manager.
2. Construct each sample or mock-up complete, including work of all trades required in finished work.
3. After review, samples may be used in construction of Project.

1.07 SUBMITTAL REQUIREMENTS

A. Make all submittals far enough in advance of scheduled dates for installation to provide all required time for review, for securing necessary approvals, for possible revision and resubmittals and for placing orders and securing delivery. Submission of all shop drawings shall be through the General Contractor.

B. The contractor shall allow at least 14 days for review of original submittals or resubmittals except as follows:

1. Structural steel shop drawings shall be broken down into separate submittal packages for most efficient review and delivered at least two weeks apart.
2. Division 23

a. Plumbing shop drawings - 21 days
b. Heating shop drawings - 21 days
c. Ventilation shop drawings - 28 days
d. Coordination shop drawings - 21 days

3. Division 26
    a. Special Systems shop drawings - 21 days

C. Submit one (1) reproducible unfolded transparency print of shop drawing. Upon Architects approval, Contractor shall provide five (5) opaque prints for owners use. Transparency will be returned to Contractor for printing and distribution as needed. Additional copies will be returned without review or mark-ups.

D. Submit four (4) each of samples.

E. Unless otherwise specifically permitted by the Project Manager, make all submittals in groups containing all associated items. Partial submittals may be rejected.

F. Accompany submittals with transmittal letter, in duplicate, containing:

1. Date
2. Project Title and number
3. Contractor's name and address
4. The number of each shop drawing, product data and sample submitted

G. Submittals shall include:

1. Date and revision dates
2. Project title and number
3. The name of:
    a. Architect
    b. Contractor
    c. Subcontractor
    d. Supplier
    e. Manufacturer
    f. Separate detailer when pertinent
4. Identification of product or material
5. Relation to adjacent structure or materials
6. Field dimensions, clearly identified as such
7. Specification section number
8. Applicable standards, such as ASTM number or Federal Specifications.
9. A blank space, for Architect’s review stamp

1.08 CONTRACTOR RESPONSIBILITIES

A. Review shop drawings, product data, and samples prior to submission.

B. Include noted and required corrections and indicate by stamp and signature that submittal is acceptable to Contractor. Submittals without stamp and signature will be rejected.

C. Verify:

1. Field measurements.
2. Field Construction criteria.
3. Conformance with specifications.

D. Coordinate each submittal with requirements of work and Contract Documents.

E. Contractor’s responsibility for errors and omissions in submittals is not relieved by Architect's review and approval.

F. Contractor’s deviations in submittal requirements shall not relieve Contractor from

completing Contract requirements.

G. The submittal documents shall be transmitted using the ASD Procore Construction Management Program. Number the submittals with the CSI Section then a dash then the numerical order (01650-1). Resubmittals shall have the same number with an alpha at the end. (01650-1A).

H. Contractor shall update the Procore Submittal Log on a weekly basis until Submittal Process is complete.

1.09 RESUBMITTAL REQUIREMENTS

A. Revise initial drawings as required and resubmit as specified for initial submittal.

B. Indicate on drawings any changes which have been made other than those requested by the Architect.

C. Project data and samples: Submit new data and samples as required for initial submittal.

1.010 ARCHITECT'S DUTIES

A. Review submittals with a turn-around time for review of original or resubmittal of no more than fourteen (14) calendar days, except as indicated in paragraph 1.07 B above.

B. The review will be for conformance to the design concept and compliance with information given in the Contract Document. The Architect will make notations directly on the reproducible.

C. The review is intended to foresee unacceptable products to avoid the possibility of their rejection at the site. The review shall not be construed as:

1. Permitting a departure from the Contract Documents, unless specifically so noted.
2. Relieving the Contractor of the responsibility for errors or omissions.
3. Acceptance of an assembly in which an approved item is a part.
4. Approval of variations from previously approved items.
5. Approval of dimensions.

D. The Architect will review all samples. Such review will be for appearance only. Compliance with all other requirements is the responsibility of the Contractor.

E. Affix stamps and initials or signatures certifying the review of submittal.

F. Where the Contract Documents require the design of the structural, mechanical, or electrical systems or components of systems by a supplier, such systems or components shall be designed by a registered professional engineer and all calculations submitted to the Architect for his records, prior to starting fabrication or installation of the work. The Architect will not be responsible for the designs of such other Professionals.

1.011 VARIATIONS FROM CONTRACT DOCUMENTS

A. See Section 01630 for procedure.

B. If the Contractor fails to mention variations from the Contract Documents, he will not be relieved of the responsibility for executing the work in accordance with the Contract Documents.

1.012 SUBMITTALS FOR COLOR SELECTION

A. The Contractor shall take particular note that color selections cannot be made for the project until such time as all items requiring color selection have been submitted. After such submittal has been made, the Architect with Owner's concurrence will within fourteen (14) days, make a complete color selection for the entire project.

B. It will be the contractor's responsibility to review the Contract Documents completely to determine items requiring color selection, obtain color samples from the manufacturer and submit to the Architect at the earliest possible date.

1.013 DISTRIBUTION OF SUBMITTALS AFTER REVIEW

A. Contractor shall distribute copies of shop drawings and product data which carry Architect's stamp, to:

1. Contractor's file (required)
2. Job-site file (required)
3. Record Documents file (required)
4. Other prime Contractors (as required)
5. Subcontractors (as required)
6. Supplier (as required)
7. Fabricator (as required)
8. Others (as required)

PART 2. PRODUCTS (NOT USED)

PART 3. EXECUTION (NOT USED)

END OF SECTION

AIRBORNE CONTAMINANT CONTROL

PART 1 - GENERAL

1.01 SUMMARY:

A. Related sections:

1.	Section 02 26 00	Hazardous Materials Assessment
2.	Section 02 41 19	Selective Demolition
3.	Section 02 82 33	Removal & Disposal of Asbestos Containing Materials
4.	Section 02 88 00	Removal & Disposal of Miscellaneous Hazardous Materials

B. Notification of Potential Hazards: Asbestos, lead and other potentially hazardous materials are present in the building that may impact the work of all trades. Regulated air contaminants, including asbestos and lead, are also present in settled and concealed dust in and on architectural, structural, mechanical and electrical components or systems throughout the building. All trades shall coordinate with other trades and conduct their work to prevent worker exposure or site contamination. Refer to Specification Divisions 0, 1 and 2 for specific information concerning disturbing, removing and disposing of these materials and the installation of new materials or components. This notification is provided in accordance with EPA and OSHA requirements.

1.02 DEFINITIONS:

A. “Airborne Contaminants” are those contaminants listed in 29 CFR 1926.55 and 8 AAC 61.1100 that have the potential to become airborne due to various work activities being performed by the Contractor. Additionally, airborne contaminants include those fumes and odors that may be objectionable to personnel in Occupied Areas of the facility even though they are not listed in the reference regulations. Airborne contaminants may be broadly categorized as Pre-Existing or Activity Generated. Contaminant producing activities include, but are not limited to:

1. Demolition, removal, installation and disposal of walls, floors, ceilings, steel, and other architectural or structural materials.
2. Disturbance or removal of existing settled and concealed dusts.
3. Demolition, relocation, installation and disposal of plumbing, mechanical and electrical systems and equipment.
4. Finish operations such as sanding, preparation, painting, and application of special surface coatings.
5. Any construction activity can generate aerosols, dust, smoke, or fumes.
6. Temporary heat sources.
7. Other on-site work operations not described above.

B. “Pre-Existing Contaminants” are those contaminants that are present in the facility prior to the start of any work. These contaminants, including asbestos and lead, are also present in settled and concealed dust throughout the building in areas not subject to routine cleaning, including the roof and inside and on top of architectural, mechanical, electrical and structural elements. The dust generally contains several common components including, but not limited to asbestos, cellulose, cotton, fiberglass, lead, silica and other Particulates Not Otherwise Regulated. Representative dusts throughout the facility have been examined and previously sampled by an EPA Certified Building Inspector and determined not to be “asbestos debris” from adjacent “Asbestos-Containing Building Materials” (ACBM). Based on similar sampling from similar buildings, the inspector also determined that the dusts do not contain more than one percent (1%) asbestos by weight, and therefore are not an asbestos-containing material (ACM). Reference 40 CFR 763.83

for asbestos, and 29 CFR 1926.1153 for silica. Refer to Section 02 26 00, Hazardous Materials Assessment. Dust and debris related to adjacent damaged asbestos containing materials are addressed in Section 02 82 33, Removal and Disposal of Asbestos Containing Materials.

C. "Activity Generated Contaminants" are those contaminants generated by the various demolition or construction related activities of the Contractor. Examples of typical Activity Generated Contaminants include wood dust (cellulose), cement dust (silica), gypsum dust (particulates not otherwise regulated), paint fumes, and welding fumes. A complete list of regulated air contaminants is available in 29 CFR 1926.55 and 8 AAC 61.1100.

D. "Work Areas": Areas of demolition, renovation, construction, adjacent staging and storage areas, and passage areas for workers, supplies, and waste. This may include but is not limited to attic spaces, spaces above ceilings, crawl spaces, mechanical and electrical spaces, confined spaces and other spaces not normally accessed or occupied.

E. "Occupied Areas": Areas as determined by Owner's Representative and as shown on contract drawings. Typically, these include areas adjacent to Work Areas or containment areas, either occupied or used for passage, as well as areas connected to construction area by mechanical system air intake, exhaust, and ductwork. Contaminant control procedures may be relaxed during periods when school is not in session as allowed by the Contractor's approved work plan.

F. "Critical Clean Areas": Areas inside or outside the Work Area with equipment or occupants that cannot tolerate airborne contamination and are to be maintained under positive pressure by High-Efficiency, Particulate, Air (HEPA) filtered equipment relative to the surrounding air. These areas will be described or shown in contract documents or drawings.

G. "Contractor" is defined to include all trades and all subcontractors performing work on the work site.

H. "Negative Initial Determination" is a determination made either through air monitoring or other objective data that indicates worker exposure to regulated airborne contaminants are below or expected to be below the regulated limits.

1.03 AIRBORNE CONTAMINANT CONTROL

A. There is no requirement to remove Pre-Existing Contaminants from the facility. The Contractor may remove Pre-Existing Contaminants from their work areas if they determine that to be a more cost-effective means of completing the work.

B. The Contractors shall establish and maintain control over the generation and containment of all potential airborne contaminants so that workers, facilities, students, staff, educational programs, equipment, and operations are not adversely affected, including adverse effects on air monitoring. Construction activities that disturb existing materials or create airborne contaminants must be conducted in Work Areas specifically constructed, ventilated, and/or equipped to prevent the movement of contaminants into Occupied or Critical Clean Areas.

C. The Contractor shall establish and maintain control over Activity Generated Contaminants within the Work Area to prevent abnormally high levels of airborne contaminants from settling on architectural, mechanical, electrical or structural components within the work areas, or interference with monitoring conducted for other work. The Contractor shall be required to clean all surfaces within a work area where abnormally high levels of Activity Generated Contaminants are deposited.

D. The Contractor shall ensure that all workers are aware of the Occupied and Critical Clean Areas, the potential air contaminants present and the means and methods established in the work plan to control those contaminants.

E. The Contractor shall ensure workers have the proper protective equipment needed for the job being performed.

1.04 TRAINING

A. The Contractor shall ensure that all workers/trades performing work on the project site are trained in accordance with OSHA standards for hazard communication (29 CFR 1910.1200) and proper protective equipment (29 CFR 1926), as well as engineering controls and work methods required to prevent exposure to regulated air contaminants that might be generated or encountered as a result of their work, including 29 CFR 1926.1153.

1.05 RESPONSIBILITY:

A. Owner's Responsibilities

1. The Owner shall identify in contract documents Occupied Areas and Critical Clean Areas prior to allowing the Contractor to begin work. The Contractor shall be notified of all changes to these areas as work progresses.

B. Contractor's Responsibilities:

1. Preparing proposed work plans and procedures for control of airborne contaminants during demolition and construction.
2. Identifying and implementing specific means and methods of achieving and maintaining control of airborne contaminants.
3. Controlling the generation and spread of airborne contaminants from the Contractor's Work Areas.
4. Cleaning and decontaminating all areas contaminated as the result of their operation. The Owner has the right to review and approve of any and all clean-up and decontamination procedures, chemicals, and processes.
5. Notifying Owner's Representative a minimum of 48 hours prior to starting construction activities that might be expected to produce excess levels of airborne contaminants in Work Area so that precautions may be taken.

1.06 SUBMITTALS:

A. Submittals Required: Submit the following documentation to the Owner for approval. The submittal shall be coordinated with all the Contractor's subcontractors and trades and be submitted as one submittal for all work covered by this section. WORK SHALL NOT PROCEED UNTIL THE SUBMITTAL PACKAGE IS APPROVED, AND THE PRE-CONSTRUCTION MEETING HAS BEEN HELD.

1. Shop Drawings: Make all shop drawings accurate and to a scale sufficiently large to show all pertinent features of the work. Shop Drawings shall show:

a. Boundaries of each Work Area, Occupied Areas and Critical Clean Areas.
b. Location of barriers, negative pressure areas, positive pressure areas, and exhaust fan units (if required).
c. Locations of windows, louvers, ducts and other penetrations into Occupied Areas and/or Critical Clean Areas that need to be protected from airborne contamination.
d. Disposal Routes.
e. Locations of contaminant producing operations like painting or sanding which could be moved away from Occupied Areas.

2. Work Plan: The Work Plan shall be prepared for this specific job in the form of checklists and shall include:

a. Work area set-up and protection procedures during occupied times.
b. Work area set-up and protection procedures during periods of limited occupancy (vacation and holidays).

c. Work procedures to minimize generation of airborne contaminants, including a written exposure control plan.
d. Worker protection procedures.
e. Daily cleanup procedures and activities.
f. Procedures to follow if air contaminants enter Occupied or Critical Clean Areas.
g. Exposure assessment procedures if a “negative initial determination” has not been completed (note that negative initial determinations are not allowed related to silica exposure). A record of “negative initial determinations” shall be maintained by the Contractor and be available on the job site for review by the Owner or regulatory agencies.

3. Safety Data Sheets (SDSs): The Contractor shall maintain on the job site, at a location approved by the owner, SDSs for each encapsulant, surfactant, solvent, detergent, and other material proposed to be used.

B. Monitoring Results: The Contractor shall submit copies of all air monitoring and testing results to the Owner within 24 hours of receipt of results.

1.07 WORKER PROTECTION:

A. The Contractor shall review the SDS’s for the substances that will be used, data provided by these specifications, proposed means and methods, manufacturers data and other available data to determine the potential for worker exposure.

B. Conduct air monitoring of worker exposures as necessary to show that workers are not being exposed above the permissible exposure limits established by 29 CFR 1926 and 8 AAC 61.1100 (negative initial determination). Not all contaminants or substances will require exposure monitoring. All sampling by the Contractor shall be at their own cost.

C. In lieu of worker exposure monitoring, the Contractor may rely on objective data from recognized trade groups, manufacturer or previous exposure monitoring data that establish that worker exposure above the permissible exposure limits is not probable under conditions “closely resembling” the processes, types of materials, control methods, work practices and environmental conditions in the current job.

PART 2 - PRODUCTS Not Used

PART 3 - EXECUTION

3.01 WORK PRACTICES:

A. General: All construction/demolition work shall be isolated, either by enclosures, and/or work practices and equipment to prevent worker exposures above the permissible exposure limit(s), and prevent the migration of contaminants (dust, fumes, smoke, etc.) into Occupied Areas and Critical Clean Areas of the facility. Exposure to occupants shall be maintained at least 10 times lower than the permissible exposure limit(s) for airborne contaminants. Conduct disturbance of concrete, brick, stone, mortar, etc. in accordance with 29 CFR 1926.1153 related to crystalline silica. If the Contractor’s work practices are not effective in controlling airborne contaminants, as evidenced by dust, fumes, smoke, odors, etc. in Occupied or Critical Clean Areas, the Contractor shall provide a sealed barrier at the perimeter of the work area and exhaust the work area to maintain a negative pressure and/or provide a filtered positive pressure to Critical Clean and Occupied areas to keep airborne contaminants out. Maintain a positive pressure of 0.05 inches of water column relative to the air outside the Critical Clean Areas, with a minimum 100 feet per minute velocity through cracks, openings, etc.

B. Direct exhaust from fumes or smoke producing equipment away from building air intakes, windows and other penetrations into Occupied and Critical Clean Areas.

C. The Contractor shall provide “walk-off” mats, at all connections between Work Areas and Occupied Areas, vacuumed or changed daily when there is traffic between the Work Area and the Occupied Areas.

D. Enclosures, where used, shall be dust tight and withstand air pressure.

E. Prohibited Materials: The use or application of the following materials is prohibited:

1. All cleaners and aerosol products not submitted and approved by the Owner.
2. All flammable or chlorinated hydrocarbon solvents, unless approved by the Owner.

F. Any dust or debris tracked outside of Work Areas into Occupied Areas shall be cleaned up immediately. Contractor shall have the necessary manpower and equipment (dust and wet mops, HEPA vacuums, buckets and clean wiping rags) to keep adjacent Occupied Areas clean at all times.

G. Dry Sweeping is prohibited. All vacuums used for cleaning shall be equipped with HEPA filters.

H. Traffic between Work Areas and Occupied Areas shall be kept to a minimum. Keep doors between such areas closed at all times. Transport refuse through Occupied Areas in covered containers.

I. Notify the Owner’s Representative immediately of any release of airborne contaminants into Occupied Areas.

3.02 ENFORCEMENT:

A. The Contractor shall periodically inspect Occupied Areas at the perimeter of the work area and Critical Clean Areas to verify that airborne contaminants have not spread into those areas.

B. Failure to properly maintain airborne contaminant control in Work Areas, Occupied or Critical Clean Areas will result in issuance of a written warning. If the problem is not corrected immediately, the Owner will have cause to stop work.

C. Failure of the Contractor to correct deficiencies in controlling airborne contaminants will result in corrective action taken by the Owner and deduction of all costs from the Contract.

3.03 WORK STOPPAGE:

A. The Contractor shall stop work and notify the Owner whenever his work has caused visible dust, smoke, fumes or objectionable odors in Occupied or Critical Clean Areas.

B. When such work stoppage occurs, the area shall be restored to its original condition by the Contractor at no expense to the Owner. The Contractor is responsible for removing dust, fumes and debris that were generated as a result of his work.

3.04 WORK COMPLETION:

A. Provide thorough cleaning of finished surfaces that become exposed to dust or other airborne contaminants. Cleaning of Pre-Existing contaminants is not required.

B. Removal of construction barriers and airborne contaminant control equipment shall be performed in a manner to minimize disturbance of airborne contaminants into occupied spaces. HEPA vacuum and clean all finished surfaces free of dust after the removal of barriers and equipment.

END OF SECTION

SCHEDULE OF VALUES

PART 1. GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

1.02 REQUIREMENTS INCLUDED

A. Procedures for preparation and submittal of Schedule of Values.

1.03 RELATED REQUIREMENTS

A. Section 00700 and 00800 - General Conditions Supplementaryl Conditions of the Construction Contract.

B. Section 01311 – Project Schedule.

1.04 FORMAT

A. Schedule of Values shall be submitted on ASD Form 100B.

1.05 CONTENT

A. List installed value of each major item of work and each subcontracted item of work as a separate line item to serve as a basis for computing values for progress payments. Round off values to nearest dollar.

B. For each major subcontract, list products and operations of that subcontract as separate line items.

C. Include work allowances within line item of work.

D. Coordinate listings with progress schedule.

E. Component listings shall each include a directly proportional amount of Contractor’s overhead and profit.

F. For items on which payments will be requested for stored products, list the cost of stored products.

G. The sum of values listed shall equal total contract sum.

H. In addition to the above, values shall be listed for the following close out items.

1. As-builts.
2. O & M Manuals.
3. Warranties.
4. Landscape Maintenance Warranty.
5. Owner Training.
6. Demobilization (If mobilization is itemized).
7. Project close-out must retain a minimum of $25,000.00.

1.06 SUBMITTAL

A. Transmit under transmittal letter. Identify project by title and contract number.

1.07 SUBSTANTIATING DATA

A. When the Project Manager requires substantiating information, submit data justifying line item amounts in question.

B. Provide one copy of data with cover letter for each copy of application. Show application number, date and line item by number and description.

PART 2. PRODUCTS (NOT USED)

PART 3. EXECUTION (NOT USED)

END OF SECTION

CONSTRUCTION PHOTOGRAPHS

PART 1. GENERAL

1.01 REQUIREMENTS INCLUDED

A. Construction Photographs.

B. Submittals.

1.02 RELATED REQUIREMENTS

A. Section 01720 - Project Record Documents

1.03 PHOTOGRAPHY

A. Provide photographs of construction throughout progress of work.

B. Take photographs prior to covering completed work.

C. Take photographs at beginning and completion of elements of construction.

1. Asbestos Abatement process indicating the phases of abatement including:

    a. Existing Conditions
    b. Preparation Prior to Start of Work
    c. Work in Progress
    d. Completed Work
    e. Equipment used for Abatement Processes

2. Roof demolition

    a. Repairs
    b. Documentation of interim building protection measures
    c. Work in Progress
    d. Completed work
    e. Include roof designation and locations

3. Air infiltration and/or vapor barrier installation

4. Insulation installation

5. Final completion.

D. The Contractor, on a daily basis, shall photograph the demolition and abatement process. For their own use and distribution, the Project Manager shall on a regular basis, direct photographs and/or video recordings of construction operations and work in progress.

1.04 IMAGES

A. Digital images to be uploaded to the ASD Procore Construction Management Program Project Folder daily.

B. Photo file name to include location, item photographed and orientation of view.

1.05 TECHNIQUE

A. Provide factual presentation.

B. Provide correct exposure and focus, high resolution and sharpness, maximum depth of field and minimum distortion.

C. The Contractor shall furnish access, labor and facilities to assist photographer(s). Photographs shall be taken with a Digital type camera with flash attachment in working order.

1. Furnish the Project Manager with a quantity equal to minimum ten (10) photographs per work area per day ISO appropriate to lighting conditions.

1.06 VIEWS

A. Consult with Project Manager for instructions on views required.

B. Locations of photos. It is preferred to have similar angles and locations of existing conditions, in progress and complete photos.

1.07 SUBMITTALS

A. All photos to be loaded in Procore and labelled.

PART 2. PRODUCTS (NOT USED)

PART 3. EXECUTION (NOT USED)

END OF SECTION

QUALITY CONTROL

PART 1. GENERAL

1.01 RELATED REQUIREMENTS

A. Section 00700 and 00800 - General Conditions and Supplementary Conditions to the Construction Contract.
B. Section 01090 - Reference Specifications and Standards.
C. Section 01300 - Submittals.
D. Section 01410 - Testing Laboratory Services.
E. Section 01420 - Special Inspections

1.02 GENERAL REQUIREMENTS

A. The contractor is responsible for quality control and shall establish and maintain an effective quality control system in compliance with this section. The quality control system shall consist of plans, procedures, and organization necessary to produce an end product which complies with the contract requirements. The system shall cover all construction operations, both onsite and offsite, and shall be keyed to the proposed construction sequence.

1.03 QUALITY CONTROL PLAN

A. The Contractor shall furnish for review by the Owner, not later than 30 days after receipt of notice to proceed, the Contractor Quality Control (CQC) Plan proposed to implement the requirements of this section. The plan shall identify personnel, procedures, control, instructions, tests, records, and forms to be used.

1. Content of the CQC Plan: The CQC Plan shall include, as a minimum, the following to cover all construction operations, both onsite and offsite, including work by subcontractors, fabricators, suppliers, and purchasing agents:

   a. A description of the quality control organization, including the name, qualifications (in resume format), duties, responsibilities, and authorities of each person assigned a CQC function, including the person assigned responsibility of CQC manager.
   b. Control, verification, and acceptance testing procedures for each specific test to include the test name, specification paragraph requiring test, feature of work to be tested, test frequency, and person responsible for each test. (Laboratory facilities will be approved by the Owner.)
   c. Procedures for tracking preparatory and follow-up control phases, verification, and acceptance tests, including documentation.
   d. Procedures for tracking construction deficiencies from identification through acceptable corrective action. These procedures shall establish verification that identified deficiencies have been corrected.
   e. Reporting procedures, including proposed reporting formats.
   f. A list of the definable features of work. A definable feature of work is a task which is separate and distinct from other tasks, has separate control requirements, and may be identified by different trades or disciplines, or it may be work by the same trade in a different environment. Although each section of the specifications may generally be considered as a definable feature of work, there are frequently more than one definable features under a particular section.

2. Acceptance of Plan: Acceptance of the Contractor's plan is required prior to the start of construction. Acceptance is conditional and will be predicated on satisfactory

performance during the construction. The Owner reserves the right to require the Contractor to make changes in the CQC Plan and operations including removal of personnel, as necessary, to obtain the quality specified.

3. Notification of Changes: After acceptance of the CQC Plan, the Contractor shall notify the Owner in writing of any proposed change. Proposed changes are subject to acceptance.

1.04 COORDINATION MEETING

A. After the Preconstruction Conference and before start of construction, the Contractor shall meet with the Project Manager to discuss the Contractor's quality control system. The CQC Plan shall be submitted for review a minimum of 15 calendar days prior to the Coordination Meeting. During the meeting, a mutual understanding of the system details shall be developed, including the forms for recording the CQC operations, control activities, testing, administration of the system for both onsite and offsite work, and the interrelationship with the Owner's special inspection personnel. Minutes of the meeting shall be prepared by the Contractor and signed by both the Contractor and the Project Manager.

1.05 QUALITY CONTROL ORGANIZATION

A. CQC Manager: The Contractor shall identify as CQC Manager an individual within the onsite work organization who shall be responsible for overall management of CQC and have the authority to act in all CQC matters for the Contractor. The CQC Manager shall be a person with a minimum of ten (10) years' experience in construction with a minimum of three (3) years' experience in Quality Control Management or Construction Inspection, preferably with some formal Quality Control training. This CQC Manager shall be on the site at all times during construction and shall be employed by the prime Contractor.

B. CQC Personnel: In addition to CQC personnel specified elsewhere in the contract, the Contractor shall provide as part of the CQC organization specialized personnel to assist the CQC Manager for the following areas: electrical, mechanical, structural, and architectural. Each of these individuals must have either an engineering degree in their respective field and two years of experience or five (5) years of related experience. These individuals are to be responsible to the CQC Manager; be physically present at the construction site during work on their areas of responsibility; have the necessary education and/or experience in accordance with this section. These individuals may perform other duties but must be allowed sufficient time to perform their assigned quality control duties as described in the Quality Control Plan.

C. ASD CQC Testing Requirements: See Attachment 1 below.

ASD CQC TESTING REQUIREMENTS

MATERIAL TESTED	CHARACTERISTIC TESTED	SAMPLE FREQUENCY	SAMPLING POINT	REPORT DUE
CLASSIFIED FILL MATERIAL AND BACKFILL (TYPE II, TYPE IIA, BLENDED, ETC.)	GRADATION	1 PER SOIL TYPE AND NOTABLE CHANGE IN CHARACTERISTICS	PRIOR TO PLACEMENT	BEFORE USE ON PROJECT
	MOISTURE DENSITY (PROCTOR)			
	COMPACTION/DENSITY	STRUCTURAL = 1 PER LIFT & PER 500 S.F. TRENCHES = 1 PER LIFT & PER 150 L.F. FLATWORK = 1 PER LIFT & PER 5000 S.F.	IN PLACE	PRIOR TO NEXT LIFT
LEVELING COURSE (D-1, RAP, ETC.)	GRADATION	1 PER SOIL TYPE AND NOTABLE CHANGE IN CHARACTERISTICS	PRIOR TO PLACEMENT	BEFORE USE ON PROJECT
	MOISTURE DENSITY (PROCTOR)			
	COMPACTION/DENSITY	FLATWORK = 1 PER LIFT & PER 5000 S.F.	IN PLACE	PRIOR TO NEXT LIFT
STRUCTURAL IN-SITU BASE OF EXCAVATION (BOTTOM OF HOLE)	GRADATION	1 PER IN-SITU STRUCTURAL BOTTOM OF HOLE AND NOTABLE CHANGE IN CHARACTERISTICS	PRIOR TO PLACEMENT	BEFORE BUILDING UPON
	MOISTURE DENSITY (PROCTOR)			
	COMPACTION/DENSITY	BASE OF EX. = 1 PER FOUNDATION AREA	IN PLACE	BEFORE BUILDING UPON
STRUCTURAL CONCRETE	SAMPLING	1 MINIMUM PER PLACEMENT, PER DAY (1-25 C.Y.), 1 EVERY 50 C.Y. THEREAFTER. 1 AFTER EACH ADDITION OF ADMIXTURE OR WATER (SLUMP AND AIR ONLY AFTER ADDING ONLY WATER)	POINT OF PLACEMENT (NOT @ TRUCK)	REPORT-24 HRS VERBAL-TIME OF TEST
	SLUMP			
	AIR CONTENT			
	TEMPERATURE			
	COMP. STRENGTH			7 & 28 DAYS
ARCHITECTURAL & CIVIL CONCRETE	SAMPLING	1 MINIMUM PER PLACEMENT, PER DAY (1-25 C.Y.), 1 EVERY 100 C.Y. THEREAFTER.	POINT OF PLACEMENT OR TRUCK CHUTE	REPORT-24 HRS VERBAL-TIME OF TEST
	SLUMP			
	AIR CONTENT			
	TEMPERATURE			
	COMP. STRENGTH			7 & 28 DAYS
STRUCTURAL GROUT (BASEPLATES, CMU, ETC.)	SAMPLING	1 PER PLACEMENT, PER DAY	BATCH POINT (ENSURE BATCH CONFORMS TO MFR SPECS)	REPORT-24 HRS VERBAL-TIME OF TEST
	SLUMP			
	AIR CONTENT			
	TEMPERATURE			
	COMP. STRENGTH			7 & 28 DAYS

AC PAVING	GRADATION	1 PER PLACEMENT, PER DAY AND EVERY 700 TONS THEREAFTER.	BEHIND PAVER & PRIOR TO COMPACTION	REPORT-24 HRS VERBAL-TIME OF TEST OR OBSERVATION
	CONTENT			
	COMPACTION/DENSITY	1 PER 5000 S.F.	AFTER FINAL ROLL	
	VISUAL	OBSERVE & DOCUMENT DEPTH, AGGREGATE SIZE, VOIDS IN AGGREGATE, OIL POOLING, ETC. VERIFY BATCH TICKET MIX DESIGN & PROJECT	DURING PLACEMENT	
CONTRACTOR IS RESPONSIBLE FOR ALL COSTS INCURRED FOR RETESTS, REINSPECTIONS, REPLACEMENT OF NON-CONFORMING PRODUCTS. OWNER EMPLOYED SPECIAL INSPECTION VERIFICATION AND TESTING IS IN ADDITION TO THE CONTRACTOR'S QUALITY CONTROL TESTING. SPECIAL INSPECTION IN NO WAY DIMINISHES OR REDUCES THE CONTRACTOR'S QUALITY CONTROL OBLIGATIONS.				

1.06 CONTROL

A. Contractor Quality Control is the means by which the Contractor ensures that the construction, to include that of subcontractors and suppliers, complies with the requirements of the contract. At least two phases of control shall be conducted by the CQC Manager for each definable feature of work as follows:

1. Preparatory Phase: This phase shall be performed prior to beginning work on each definable feature of work, after all required plans/documents/materials are approved, and after copies are at the work site. This phase shall include:

a. A review of each paragraph of applicable specifications, reference codes, and standards. A copy of those sections of referenced codes and standards applicable to that portion of the work to be accomplished in the field shall be made available by the Contractor at the preparatory inspection. These copies shall be maintained in the field and available for use by the Owner until final acceptance of the work.
b. A review of the contract drawings.
c. A check to assure that all materials and/or equipment have been tested, submitted, and approved.
d. Review of provisions that have been made to provide required control inspection and testing.
e. Examination of the work area to assure that all required preliminary work has been completed and is in compliance with the contract.
f. A physical examination of required materials, equipment, and sample work to assure that they are on hand, conform to approved shop drawings or submitted data, and are properly stored.
g. Discussion of procedures for controlling quality of the work including repetitive deficiencies. Documentation of construction tolerances and workmanship standards for that feature of work.
h. A check to ensure that the portion of the plan for the work to be performed has been accepted by the Project Manager.
i. Discussion of the initial control phase.
j. The Owner shall be notified at least 48 hours in advance of beginning the preparatory control phase. This phase shall include a meeting conducted by the

CQC Manager and attended by the Superintendent, other CQC personnel (as applicable), and the foreman responsible for the definable feature. The results of the preparatory phase actions shall be documented by separate minutes prepared by the CQC Manager and attached to the daily CQC report. The Contractor shall instruct applicable workers as to the acceptable level of workmanship required in order to meet contract specifications.

2. Follow-up Phase: Daily checks shall be performed to assure control activities, including control testing, are providing continued compliance with contract requirements, until completion of the particular feature of work. The checks shall be made a matter of record in the CQC documentation. Final follow-up checks shall be conducted, and all deficiencies corrected prior to the start of additional features of work which may be affected by the deficient work. The Contractor shall not build upon nor conceal non-conforming work.

1.07 TESTS

A. Testing Procedure: The Contractor shall provide inspections, tests, and similar quality control services, specified in individual Specification Sections, and required by governing authorities, (Costs for these services shall be included in the Contract Sum). Upon request, the Contractor shall furnish to the Owner duplicate samples of test specimens for possible testing by the Owner. Testing includes operation and/or acceptance tests when specified. The Contractor shall perform the following activities and record and provide the following data:

1. Verify that testing procedures comply with contract requirements.

2. Verify that facilities and testing equipment are available and comply with testing standards.

3. Check test instrument calibration data against certified standards.

4. Verify that recording forms and test identification control number system, including all of the test documentation requirements, have been prepared.

5. Results of all tests taken, both passing and failing, shall be recorded on the CQC report for the date taken. Specification paragraph reference, location where tests were taken, and the sequential control number identifying the test shall be given. If approved by the Project Manager, actual test reports may be submitted later with a reference to the test number and date taken. An information copy of tests performed by an offsite or commercial test facility shall be provided directly to the Project Manager. Failure to submit timely test reports as stated may result in nonpayment for related work performed and disapproval of the test facility for this contract.

B. Retesting: The Contractor is responsible for retesting where results of required inspections, tests, or similar services prove unsatisfactory and do not indicate compliance with Contract Document requirements, regardless of whether the original test was the Contractor's responsibility. Cost of retesting construction revised or replaced by the Contractor is the Contractor's responsibility, where required tests were performed on original construction.

C. Associated Services: The Contractor shall cooperate with agencies performing required inspections, tests, and similar services and provide reasonable auxiliary services as requested. Notify the agency sufficiently in advance of operations to permit assignment of personnel. Auxiliary services required include but are not limited to:

1. Providing access to the Work, approved plans, and furnishing incidental labor and facilities necessary to facilitate inspections and tests.

2. Providing facilities for storage of all special inspection reports at the Project site and make available for review by the authorities having jurisdiction.
3. Taking adequate quantities of representative samples of materials that require testing or assisting the agency in taking samples.
4. Providing facilities for storage and curing of test samples, and delivery of samples to testing laboratories.
5. Providing the agency with a preliminary design mix proposed for use for materials mixes that require control by the testing agency.
6. Security and protection of samples and test equipment at the Project site.

D. Correction of Work: The Contractor shall bear all costs of correcting all Work identified as defective or as failing to conform to the Contract Documents, including any additional Owner Inspection Costs, and additional compensation for the Architect's and/or Project Manager's additional services made necessary thereby.

E. Qualification for Laboratory Agencies: Engage inspection and testing service agencies, including independent testing laboratories free of conflict on interests with the General Contractor, which are prequalified as complying with "Recommended Requirements for Independent Laboratory Qualification" by the American Council of Independent Laboratories, and which specialize in the types of inspections and testing to be performed.

1. Each independent inspection and testing agency engaged on the Project shall be authorized by the authorities having jurisdiction to operate in the State of Alaska and the Municipality of Anchorage.
2. The Owner reserves the right to direct the specific location or area of work to be tested in accordance with contract requirements.

1.08 SPECIAL INSPECTIONS

A. The Owner will provide Special Inspections, tests, and similar quality control services as identified in Section 01420, "Special Inspections". Costs for the Special Inspection services are not included in the Contract Sum.

B. Duties of the Testing Agency: The independent testing agency engaged to perform inspections, sampling, and testing of materials and construction specified in individual Specification Sections shall cooperate with the Owner's Representative and Contractor in performance of its duties and shall provide qualified personnel to perform required inspections and tests.

1. The agency shall notify the Project Manager, and Contractor promptly of irregularities or deficiencies observed in the Work during performance of its services.
2. The agency is not authorized to release, revoke, alter, or enlarge requirements of the Contract Documents, or approve or accept any portion of the Work.
3. Special Inspection agency shall not perform any duties of the Contractor, nor be under contract to perform testing services required of the Contractor.

C. Coordination: The Contractor and each agency engaged to perform inspections, tests, and similar services shall coordinate the sequence of activities to accommodate required services. In addition, the Contractor and each agency shall coordinate activities to avoid the necessity of removing and replacing construction to accommodate inspections and tests.

1. The Contractor is responsible for scheduling times for inspections, tests, taking samples, and similar activities.
2. The Contractor shall notify the Owner's Special Inspectors, and the Owner, in writing 72 hours prior to required special inspection and coordinate with these inspectors so there

are no additional project costs, schedule impacts or delays. The Contractor shall also be responsible to coordinate with the special inspectors and the Owner to identify on the construction schedule when these inspections shall occur.

1.09 WORKMANSHIP

A. Comply with industry standards except when more restrictive tolerances or specified requirements indicate more rigid standards or more precise workmanship.

B. Perform work by persons qualified to produce workmanship of specified quality.

C. Secure products in place in positive anchorage devices designed and sized to withstand stresses, vibration, and racking.

1.10 MANUFACTURER'S INSTRUCTIONS

A. Comply with instructions in full detail, including each step in sequence. Should instructions conflict with Contract Documents, request clarification from the Project Manager before proceeding.

1.11 MANUFACTURER'S FIELD SERVICE

A. When required by individual Specifications Section, submit manufacturer's certificate, signed by responsible officer of the Manufacturer, that products meet or exceed specified requirements.

B. When required by manufacturer, have manufacturer provide qualified representative to observe field conditions, conditions of surfaces and installation, quality of workmanship, start-up of equipment, test, adjust, and balance of equipment as applicable. Manufacturer Field Representative shall make a written report of observations and recommendations to the Project Manager.

1.12 SAMPLE PANELS AND MOCK-UPS

A. Sample panels and/or mock-ups shall be used to establish uniform level of workmanship and finish color and texture. Accepted sample or mock-up shall serve as minimum standard of quality for subsequent work.

B. Work on any Section requiring a sample panel or mock-up shall be approved in writing by the Owner.

C. Sample panels or mock-ups may be requested by the Owner even though not specifically required of Specification Section to clarify level of workmanship, color, or texture.

D. Tests shall be performed in accordance with Section 01410 and this section.

1.13 OBSERVATION

The following stages of construction specifically require observation by the Architect, Owner, and other Authorities having jurisdiction. Provide the indicated notice to the Project Manager prior to commencing work on the phase or upon completion as appropriate:

A. Stages that require two day notice include:

1. Completion of utility trench excavation prior to placement of bedding.

2. Completion of utility pipe installation prior to backfill.
3. Completion of subdrain system's drainage mat and perforated pipe prior to backfill.
4. Completion of driveway, parking lot and sidewalk excavation, installation of geotextile fabric and backfill prior to placement of pavement.
5. Completion of asphalt concrete pavement placement.
6. Completion of portland cement concrete pavement placement.
7. Completion of building excavation, geotextile fabric installation, and backfill prior to placement of concrete floor slab.
8. Completion of excavation forming prior to concrete placement.
9. Completion of concrete masonry, as damp-proofing work is beginning.
10. Wall framing and sheathing completed, observation of shear wall fastening and connections.
11. Mechanical and electrical rough-in and wall blocking, prior to cover.
12. Insulation and vapor barrier installation prior to cover, observation required as work progresses, notify as phases are complete.
13. Completion of mock-ups and finishes as mock-ups and areas are completed.
14. Prior to beginning roofing.

B. Stages that require five day notice include:

1. Substantial Completion.
2. Operational instructions.
3. Final Completion.

1.14 COMPLETION INSPECTION

A. Punch-Out Inspection: Near the end of the work, or any increment of the work established by a time stated in the specifications, the CQC Manager shall conduct an inspection of the work. A punch list of items which do not conform to the approved drawings and specifications shall be prepared and included in the CQC documentation, as required by Section 01400, paragraph 1.15 A.4. The list of deficiencies shall include the estimated date by which the deficiencies will be corrected. The CQC Manager or staff shall make a second inspection to ascertain that all deficiencies have been corrected. Once this is accomplished, the Contractor shall notify the Owner that the facility is ready for the Owner Substantial inspection.

B. Final Inspection: The Contractor’s Quality Control Inspection personnel shall be in attendance at the final inspection.

1.15 DOCUMENTATION

A. The Contractor shall maintain current records providing factual evidence that required quality control activities and/or tests have been performed. These records shall include the work of subcontractors and suppliers and shall be on an acceptable form that includes, as a minimum, the following information:

1. Contractor/Subcontractor and area of responsibility.
2. Operating equipment with hours worked, idle, or down for repair.
3. Work performed each day, giving location, description, and by whom.
4. Test and/or control activities performed with results and references to specifications/drawings requirements. The control phase shall be identified. List of deficiencies noted, along with corrective action.
5. Quantity of materials received at the site with statement as to acceptability, storage, and reference to specifications/drawing requirements.
6. Offsite surveillance activities, including actions taken.
7. Instructions given/received and conflicts in plans and/or specifications.

8. Any other remarks impacting quality control.
9. Contractor's verification statement.

B. These records shall indicate a description of trades working on the project; the number of personnel working; weather conditions encountered; and any delays encountered. These records shall cover both conforming and deficient features and shall include a statement that equipment and materials incorporated in the work and workmanship comply with the contract. The original and one copy of these records in report form shall be furnished to the Owner on a weekly basis within 24 hours after the date covered by the report, except that reports need not be submitted for days on which no work is performed. As a minimum, one report shall be prepared and submitted for every 7 days of no work and on the last day of a no work period. All calendar days shall be accounted for throughout the life of the contract. Reports shall be signed and dated by the CQC Manager. The report from the CQC Manager shall include copies of test reports and copies of reports prepared by all subordinate quality control personnel.

1.16 NOTIFICATION OF NONCOMPLIANCE

A. The Project Manager will notify the Contractor of any detected noncompliance with the foregoing requirements. The Contractor shall take immediate corrective action after receipt of such notice. Such notice, when delivered to the Contractor at the work site, shall be deemed sufficient for the purpose of notification. If the Contractor fails or refuses to comply promptly, the Project Manager may issue an order stopping all or part of the work until satisfactory corrective action has been taken. No part of the time lost due to such stop orders shall be made the subject of claim for extension of time or for excess costs or damages by the Contractor.

PART 2. PRODUCTS (NOT USED)

PART 3. EXECUTION (NOT USED)

END OF SECTION

TESTING LABORATORY SERVICES

PART 1. GENERAL

1.01 REQUIREMENTS INCLUDED

A. Contractor will employ and pay for the services of an independent testing laboratory, free of conflict of interests with the General Contractor, to perform specified testing.

B. Employment of the laboratory shall in no way relieve Contractor's obligations to perform the work of the contract.

C. Inspection, sampling and testing required as called for in the following technical sections.

D. The Contractor shall pay for re-inspections and re-testing required because of defective work or ill-timed notices.

1.02 RELATED REQUIREMENTS

A. Article 7.7, Section 00700 - General Conditions.

B. Inspections and testing required by laws, ordinances, rules, regulations, orders, project Contract Documents, or approvals of public authorities.

C. Certification of Products: Respective Sections of Specifications.

D. Test, Adjust, and Balance of Equipment: Respective Sections of Specifications.

E. Each Specification Section Listed: Laboratory test required, and standards for testing.

1.03 QUALIFICATIONS OF LABORATORY

A. Independent laboratory acceptable to Owner, Architect and Building Official.

B. Meet “Recommended Requirements for Independent Laboratory Qualification” latest edition, published by American Council of Independent Laboratories, 1300 “I” Street N.W., Washington, D.C. 20005.

C. Meet ASTM E-329 latest edition, "Standards of Recommended Practice for Inspection and Testing Agencies for Concrete and Steel as used in Construction."

1.04 LABORATORY’S DUTIES

A. Laboratory authorized to operate in Alaska, with a full-time engineer registered in Alaska on staff to review services.

B. Ascertain and certify compliance with Contract Documents.

C. Promptly submit, unless otherwise indicated, written Inspection and Test Report to each of the following within forty-eight hours of inspection:

1. Owner: Two (2) copies
2. Architect: Two (2) copies
3. Contractor: Two (2) copies or as required

D. Include the following on Test Reports:

1. Date issued.
2. Project title and location.
3. Testing Laboratory name and address.
4. Inspector's name.
5. Date of inspection or sampling.
6. Record of temperature and weather.
7. Date of test.
8. Identification of product tested.
9. Test location in Project.
10. Type of inspection or test.
11. Observations regarding compliance with Contract Documents.

E. Laboratory is not authorized to:

1. Release, revoke, alter, or enlarge on Contract Document requirements.
2. Approve or accept any portion of work.
3. Assume any duties of Contractor.
4. Stop Work.

1.05 CONTRACTOR'S DUTIES

A. Cooperate with laboratory personnel, provide access to work, and to Manufacturer's operations.

B. Secure and deliver to the laboratory adequate quantities of representation samples of materials proposed to be used and which require testing.

C. Provide to the laboratory the preliminary design mix proposed to be used for concrete, and other materials mixes which require control by the testing laboratory.

D. Furnish copies of products test reports as required.

E. Furnish incidental labor and facilities:

1. To provide access to work to be tested.
2. To obtain and handle samples at the project site or at the source of the project to be tested.
3. To facilitate inspections and tests.
4. For storage and curing of test samples.

F. Notify laboratory sufficiently in advance of operations to allow for laboratory assignment of personnel and scheduling of tests. Twenty-four hour minimum notification.

1. When tests or inspections cannot be performed after such notice, reimburse Owner for laboratory personnel and travel expenses incurred due to Contractor's negligence.

G. Notify Architect and Owner a minimum twenty-four hours in advance of any testing.

H. Repair test holes to match original conditions.

I. Quality Control is the responsibility of the General Contractor. The General Contractor should employ a testing firm to provide testing as required to monitor and maintain his own quality control program, as well as satisfy the specific requirements of the Contract Documents.

1.06 OWNER'S TESTING LABORATORY SERVICES

A. The Owner may also employ and pay for the services of an Independent Testing Laboratory to perform specified testing as indicated in the Supplementary General Conditions and in this section. This testing service will be employed for Quality Assurance Only. QUALITY CONTROL IS THE RESPONSIBILITY OF THE GENERAL CONTRACTOR.

B. The Contractor shall cooperate with the Owner's laboratory to facilitate the execution of its services.

C. A copy of the Owner's laboratory written report of each test will be distributed to the Contractor.

D. When initial tests indicate work does not comply with the Contract Document, all additional tests required, until tests pass, shall be at the expense of the Contractor.

PART 2. PRODUCTS (NOT USED)

PART 3. EXECUTION (NOT USED)

END OF SECTION

SPECIAL INSPECTIONS

PART 1. GENERAL

1.01 REQUIREMENTS INCLUDED

A. Purpose

B. Types of Work

C. Owner Responsibilities

D. Engineer or Architect of Record Responsibilities

E. Contractor Responsibilities

F. Special Inspector Responsibilities

1.02 RELATED REQUIREMENTS

A. Drawings and general provisions of Contract, including General and Supplementary Conditions and other Division - 1 Specification Sections, apply to this Section.

1. Section 00700 and 00800 - General Conditions and Supplementary Conditions of the Construction Contract.
2. Section 01090 - Reference Specifications and Standards
3. Section 01300 - Submittals
4. Section 01400 - Quality Control Services

1.03 REFERENCES

A. International Building Code (IBC) - SECTION 1704 - SPECIAL INSPECTIONS

B. Uniform Administrative Code (UAC) - SECTION 306 - SPECIAL INSPECTIONS

1.04 PURPOSE OF SPECIAL INSPECTIONS

A. In accordance with IBC Section 1704.1 General “In addition to the inspections required by Section 109, the owner or the engineer or architect of record acting as the Owner’s agent shall employ one or more special inspectors who shall provide inspections during construction on the types of work listed under 1704.”

1.05 TYPES OF WORK

A. Except as provided in IBC Section 1704, the types of work listed below shall be inspected by a Special Inspector.

1. Concrete.
2. Bolts installed in concrete.
3. Reinforcing steel in concrete.
4. Structural welding.
5. High-strength bolting.
6. Structural masonry.
7. Spray-applied fireproofing.
8. Special grading, excavation, and filling.

B. Continuous and Periodic Special Inspection and Approved Fabricators shall be a part of the Special Inspection requirements.

1.06 OWNER RESPONSIBILITIES

A. The Owner or the Engineer or Architect of Record acting as the Owner's agent shall employ one or more Special Inspectors who shall provide inspections during construction on the types of work listed.

B. The Owner shall be responsible for providing a full set of drawings and specifications to each Special Inspector.

1.07 ENGINEER OR ARCHITECT OF RECORD

A. The Engineer or Architect of Record, under the Owner's direction, may be required to employ one or more Special Inspectors who shall provide inspections during construction on the types of work listed under IBC Section 1704.

B. The Engineer or Architect of Record, under the Owner's direction, may be responsible for coordinating the Pre-Construction Meeting, with the Contractor, to include Special Inspectors for the purpose of reviewing the Special Inspection Program and responsibilities of each member.

C. The Engineer or Architect of Record is responsible for clearly indicating the design parameters and material selection on the project plans and/or specifications.

D. The Engineer or Architect of Record shall determine when and where Special Inspection is necessary in order to meet requirements of the Code.

E. It shall be the responsibility of the Architect or Engineer of Record to prepare a typewritten Special Inspection Program for submittal to the Building Official for review and approval (UAC 302.5). Such approval shall be obtained prior to issuance of a Building Permit.

F. Design changes required to correct non-conforming work already incorporated into the completed construction, shall be identified to the Building Official for review and approval as a Change Order. Such Changes shall be generated by the Engineer or Architect of Record.

1.08 CONTRACTOR RESPONSIBILITIES

A. The Contractor shall be responsible for calling a Pre-Construction meeting to review Special Inspection requirements as they pertain to the project. Attendees shall include the Contractor's Construction Supervisor, ASD Project Manager, the Engineer or Architect of Record, the Building Safety Division Inspector assigned to the project, all Special Inspectors, and any subcontractors who will actually be constructing items requiring Special Inspection. This meeting shall not be considered a substitute for any pre-construction meeting held between the Contractor and the Owner and Engineer or Architect of Record although they may coincide.

B. The Contractor shall be responsible for notifying the Special Inspector or special inspection firm regarding required special inspections. Notice shall be a minimum of 24 hours in advance.

C. The Contractor shall have on site at all times, an approved set of plans and construction documents available to the Special Inspector for the purpose of reference or clarification.

D. The Contractor shall be responsible for retaining, on site, a copy of all Special Inspection records submitted by the Special Inspector.

1.09 SPECIAL INSPECTOR RESPONSIBILITIES

A. The Special Inspector shall observe the work assigned for conformance with the approved design drawings and specifications.

B. Special Inspectors requiring certification by an agency such as ICBO, ACI, or AWS shall carry current certification with them while performing the Work on site.

C. The Special Inspector shall remain on site at all times when work requiring Special Inspection is in progress.

D. The Special Inspector shall immediately bring all nonconforming items of work or material to the immediate attention of the Contractor for correction.

E. The Special Inspector or Inspection Firm shall submit required written reports to the Building Official (two copies), the Owner, and the Engineer or Architect of Record within 48 hours of inspection.

F. Special Inspectors or Inspection Firms shall submit a final signed report to the Building Safety Division stating that all items requiring Special Inspection were, to the best of their knowledge, in conformance with the approved design drawings, specifications, approved change orders and the applicable workmanship provided in the International Building Code. Items not in conformance, unresolved items, and any discrepancies in inspection coverage shall be specifically itemized in the final report.

G. Special Inspectors shall meet all certification requirements stated in the Special Inspection Program and required by the Municipality of Anchorage Building Safety Division and shall maintain certification at all times throughout the project.

END OF SECTION

STRUCTURAL OBSERVATION

PART 1. GENERAL

1.01 REQUIREMENT INCLUDED

A. Purpose

B. Types of Work

C. Owner Responsibilities

D. Engineer or Architect of Record Responsibilities

E. Contractor Responsibilities

F. Structural Observer Responsibilities

1.02 REFERENCES

A. International Building Code (IBC)–Section 1709 STRUCTURAL OBSERVATION.

1.03 PURPOSE OF STRUCTURAL OBSERVATION

A. In accordance with IBC Section 1709, the purpose of Structural Observation is as defined in IBC Section 1702.1: Visual observation of the structural system, for general conformance to the approved plans and specifications, at significant construction stages and at completion of structural system. Structural Observation does not include or waive the responsibility for the inspections required by other sections of the IBC.

1.04 TYPES OF WORK

A. The Design Structural Engineer or another engineer designated by the Design Structural engineer shall perform Structural Observation.

B. Observed deficiencies shall be reported in writing to the Owner’s Representative, Special Inspector, Contractor, and the Building Official.

C. The Structural Observer shall submit to the Building Official a written statement that the site visits have been made and identifying any reported deficiencies that, to the best of the Structural Observer’s knowledge, have not been resolved.

1.05 OWNER’S RESPONSIBILITIES

A. The Owner or the Engineer or Architect of Record acting as the Owner’s Agent shall employ one or more Structural Observers who shall provide structural observation during construction on the types of work identified under IBC Section 1709.

1.06 ENGINEER OR ARCHITECT OF RECORD

A. The Engineer or Architect of Record, under the Owner’s direction, may be required to employ one or more Structural Observers who shall provide inspections during construction on the types of work defined under IBC Section 1709.

B. The Engineer or Architect of Record, under the Owner's direction, with the Structural Observer, will review with the Contractor the Structural Observer Program and responsibilities of each member.

C. The Engineer or Architect of Record is responsible for clearly indicating the design parameters and material selection on the project plans and/or specifications.

D. The Engineer or Architect of Record shall determine when and where Structural Observation is necessary in order to meet requirements of the Code.

E. Design changes required to correct non-conforming work already incorporated into the completed construction, shall be identified to the Building Official for review and formal approval. Such changes shall be generated by the Engineer or Architect of Record.

1.07 CONTRACTOR RESPONSIBILITIES

A. The Contractor shall be responsible for calling a Structural Observation Organizational meeting to review the Structural Observation requirements as they pertain to the project. Attendees shall include the Contractor's Construction Supervisor, ASD Project Manager, the Engineer or Architect of Record, the Building Safety Division Inspector assigned to the project, all Structural Observers, and any subcontractors who will actually be constructing items requiring Structural Observation. This meeting shall not be considered a substitute for any pre-construction meeting held between the Contractor and the Owner and Engineer or Architect of Record although they may coincide.

B. The Contractor shall have on site at all times, an approved set of plans and construction documents available to the Structural Observer for the purpose of reference or clarification.

C. The Contractor shall be responsible for retaining, on site, a copy of all Structural Observation records submitted by the Structural Observer.

1.08 STRUCTURAL OBSERVER RESPONSIBILITIES

A. The Structural Observer shall observe the work assigned for conformance with the approved design drawings and specifications.

B. The Structural Observer shall remain on site at all times when work requiring Structural Observation is in progress.

C. The Structural Observer shall immediately bring all nonconforming items of work or material to the immediate attention of the Contractor for correction.

D. The Structural Observer shall submit required written reports to the Building Official (two copies), the Owner, and the Engineer or Architect of Record within 48 hours of inspection.

E. The Structural Observers shall submit a final signed report to the Building Safety Division stating that all items requiring Structural Observation were, to the best of their knowledge, in conformance with the approved design drawings, specifications, approved change orders and the applicable workmanship provided in the International Building Code. Items not in conformance, unresolved items, and any discrepancies in inspection coverage shall be specifically itemized in the final report.

END OF SECTION

TEMPORARY FACILITIES AND CONTROLS

PART 1. GENERAL

1.01 DESCRIPTION OF REQUIREMENTS

A. Definitions: Specific administrative and procedural minimum actions are specified in this section as extensions of provision in General Conditions and other Contract Documents. These requirements have been included for special purposes as indicated. Nothing in this section is intended to limit types and amounts of temporary work required, and no omission from this section will be recognized as an indication that such temporary activity is not required for successful completion of the work and compliance with requirements of Contract Documents. Provisions of this section are applicable to, but not by way of limitation, utility services, construction facilities, support facilities, and security-protection provisions.

1.02 QUALITY ASSURANCE

A. In addition to compliance with governing regulations and rules/recommendations of utility companies, comply with specific requirements indicated and with applicable local codes and industry standards for construction work.

1.03 JOB CONDITIONS

A. General: Establish and initiate use of each temporary facility at time first reasonably required for proper performance of the work. Terminate use and remove facilities at earliest reasonable time, when no longer needed or when permanent facilities have, with authorized use, replaced the need.

B. Conditions of Use: Install, operate, maintain, and protect temporary facilities in a manner and at locations which will be safe, non-hazardous, sanitary, and protective of persons and property, and free of deleterious effects.

C. Pay all costs for such general services and temporary facilities, except as otherwise specified, until final acceptance of the work and/or Owner’s beneficial occupancy of completed portions of the work.

PART 2. PRODUCTS

2.01 MATERIALS

A. Materials may be new or used but must be suitable and adequate in capacity for the required usage, must not create unsafe conditions, and must not violate requirements of applicable codes and standards.

B. New electrical utility drops and new transformers will be installed by the local electric utility and is not a part of the scope of work. Permanent electrical service and distribution from the new transformer is required and made a part of Scope of Work to be complete for Substantial Completion.

PART 3. EXECUTION

3.01 TEMPORARY FACILITIES

A. Sanitary Facilities

1. Provide and maintain temporary sanitary toilets in number required, location directed, and types approved by the regulatory authorities.

B. Electricity

1. Make all arrangements and pay for temporary electrical service to the construction area. Provide all equipment necessary for temporary power and lighting, and pay all charges for this equipment, and the installation thereof. Verify that electrical service is of adequate capacity for all construction tools and equipment without overloading the facilities.
2. Provide power distribution as required throughout for construction operations of all trades. The termination of power distribution shall be at convenient locations in the building. Terminations shall be provided for each voltage supply complete with circuit breakers, disconnect switches, and other electrical devices as required to protect the power supply system.
3. A temporary lighting system shall be furnished, installed and maintained as required to satisfy minimum requirements of safety and security. The temporary lighting system shall afford general illumination in all building areas and shall supply no less than 1-watt per square foot of floor area for illumination in the areas of the building where work is being performed.
4. All temporary equipment and wiring for power and lighting shall be in accordance with the applicable provisions of the governing codes. All temporary wiring shall be maintained in a safe manner and utilized so as not to constitute a hazard to persons or property.
5. When permanent electrical power and lighting systems are in operating condition they may be used for temporary power and lighting for construction purposes, provided that Contractor assumes full responsibility for the entire power and lighting systems and pays for power consumption until final acceptance or beneficial occupancy, whichever is first.
6. At the completion of the construction work all temporary wiring, lighting and other temporary electrical equipment devices shall be removed.

C. Heating, Cooling and Ventilation: Furnish by approved methods, temporary heat including fuel and power as required to protect materials and work from dampness and cold and to dry out the facility. New permanent heating system may be used for this purpose; however, such use shall not relieve Contractor of Guarantee responsibilities. Refer to individual sections for temperatures to be maintained for the work of the various trades. If the permanent heating is used for temporary heat, ducts shall be completely cleaned of dust and dirt and all filters replaced if "throw-away" type or cleaned if permanent type prior to occupancy.

D. Water Service

1. Provide all water necessary for construction purposes.
2. Furnish drinking water with suitable containers and cups for use of employees. Drinking water dispensers shall be conveniently located in the building where work is in progress.

3.02 TEMPORARY CONTROLS

A. Access Provisions

1. Provide ramps, stairs, ladders, and similar temporary access elements as reasonably required to perform the work and facilitate its inspection during installation. Comply with reasonable requests of governing authorities performing inspections.

B. Environmental Control

1. Provide and maintain all fences, barricades, lights, shoring and other protective structures or devices necessary for the safety of workmen, equipment, the public and property as required by state or municipal laws and regulations, and local ordinances, laws and other requirements of the municipality, state, and other authorities having jurisdiction with regard to safety precautions, dust control, and fire hazards.

C. Security and Protection Provisions.

1. The types of temporary security and protection provisions required include, but not by way of limitation, fire protection, personnel security program (theft prevention), and similar provisions intended to minimize property losses, personal injuries, and claims for damages at project site throughout construction period.
2. Building Enclosure and Lock-up: At earliest possible date secure building against unauthorized entrance at times when personnel are not working. Provide secure temporary enclosures at ground floor and other locations of possible entry, with locked entrances.
3. Fire Extinguishers: Provide types, sizes, numbers, and locations as would be reasonably effective in extinguishing fires during early stages by personnel at project site. Provide Type ABC dry chemical extinguishers; comply with recommendations of NFPA 10. Post warning and instructions at each extinguisher location, and instruct all personnel at project site, at time of their first arrival, on proper use of extinguishers and other available facilities at project site. Post local fire department call number on each telephone at project site.
4. Before beginning any work that may result in a fire alarm transmission, the contractor shall call both the Anchorage Fire Department dispatcher at 522-1122 and the local fire station which would respond to an alarm and let them know you will be working on the system and for approximately how long. Second, the contractor shall call Guardian Security at 274-5275 and notify the dispatcher that you have called the Fire Department, what type of work you are planning to do, and approximately how long before you expect to be completed. After the contractor is completed with your work, you must reverse the process by notifying the Fire Department dispatcher and the ASD Dispatcher that you are finished.

3.03 REMOVAL

A. Maintain all temporary facilities and controls as long as needed for safe and proper completion of Work. Remove all such temporary facilities and controls as rapidly as progress of the Work will permit, or as directed by Project Manager. Clean and repair damage caused by temporary installations or use of temporary facilities. Restore existing facilities used for temporary services to specified or original condition.

END OF SECTION

MAINTENANCE OF TRAFFIC

PART 1. GENERAL

1.01 DESCRIPTION OF WORK

A. When working adjacent to school playgrounds, provide flagmen. Payment for such flagging and protective flagmen services shall be borne by Contractor.

B. Contractor shall retain responsibility for traffic operations and protective measures to assure safe flow of traffic. Contractor shall cooperate with Owner so that traffic flow is minimally impeded by execution of work under this Contract.

1.02 SUBMITTALS

A. Prior to starting any work, Contractor shall submit to the Authority having Jurisdiction and the Project Manager, detailed plan of his proposed method for controlling traffic at each affected location. Proposed traffic control plan shall show and describe proposed locations and time durations covering the following:

1. Vehicular traffic routing including School Buses.
2. Traffic blockage anticipated to be caused by work under this contract.
3. Address conflicts between Pedestrian and vehicular traffic.

1.03 TRAFFIC MAINTENANCE FACILITIES

A. Other than as shown on approved traffic control plans, at no time shall Contractor’s operations interfere with safe and orderly operation of school. Encroachment by Contractor’s operations will not be permitted.

B. For duration of Contract, Contractor shall immediately repair or replace any and all appurtenances damaged or destroyed in performance of work included herein.

C. Upon completion of work, temporary traffic maintenance items furnished by Contractor shall remain his property and shall be removed from site by Contractor.

D. Contractor shall utilize dust control methods to control dust on access streets and project site to satisfaction of the Project Manager.

PART 2. PRODUCTS (NOT USED)

PART 3. EXECUTION (NOT USED)

END OF SECTION

PROJECT SIGN

PART 1. GENERAL

1.01 DESCRIPTION OF WORK

A. Furnish, install, and maintain project identification sign.

B. Project sign must be approved and permitted, prior to erections. Allow no other signs to be displayed.

1.02 PROJECT IDENTIFICATION

A. Painted sign of 32 sf. area with painted graphic, or printed vinyl sign, content to include:

1. Title of project
2. Name of Owner.
3. Names of professional consultants
4. Prime contractor.
5. Major subcontractors.
6. An area 18" square for Owner logo.

B. Graphic design, style of lettering, and colors: As shown in this section.

C. Erect on the site at a lighted location of high public visibility as approved by Project Manager.

1.03 QUALITY ASSURANCE

A. Sign Painter: Professional experience in type of work required.

B. Finishes, Painting: Adequate to resist weathering and fading during scheduled construction period.

PART 2. PRODUCTS

2.01 SIGN MATERIALS

A. Structure and Framing: may be new or used, wood or metal, in sound condition structurally adequate to work and suitable for specified finish.

B. Sign Surfaces: Exterior softwood plywood with medium density overlay, standard large sizes to minimize joints. Thickness as required by standards to span framing members, to provide even, smooth surface without waves or buckles.

C. Rough Hardware: Galvanized.

D. Paint: Exterior quality semi-gloss Alkyd, as specified in painting specification.

E. Vinyl Lettering and Graphics may be considered upon submittal to Project Manager.

PART 3. EXECUTION

3.01 PROJECT SIGN

A. Paint exposed surfaces of supports, framing, and surface material; one coat of primer and one coat of exterior paint.

B. Paint graphics in styles, sizes and colors selected.

3.02 MAINTENANCE

A. Maintain sign and supports in a neat, clean condition; repair damages to structure, framing or sign.

3.03 REMOVAL

A. Remove sign, framing, supports, and foundations at completion of the project.



END OF SECTION

MATERIALS AND EQUIPMENT

PART 1. GENERAL

1.01 DESCRIPTION

A. Materials and Equipment incorporated into Work shall:

1. Conform to applicable specifications and standards.
2. Comply with size, make, type, and quantity specified, unless otherwise approved in writing.

B. Manufactured and Fabricated Products:

1. Manufacture like parts of duplicate units to standard size and gauges, and to be interchangeable.
2. Two or more items of same kind shall be identical, and by same Manufacturer.
3. Products shall be suitable for service conditions.
4. Equipment shall comply with capacity, sizes, and dimensions shown or specified, unless otherwise approved in writing.

C. Do not use materials or equipment for any purpose other than that for which designed or specified.

1.02 RELATED REQUIREMENTS

A. Section 01010: Summary of Work

B. Section 01340: Shop Drawing, Product Data and Samples.

C. Section 01630: Substitution and Product Option

D. Section 01710: Cleaning

1.03 CONTRACTOR'S OPTIONS

A. For products specified only by reference standard, select any product meeting standard.

B. For products specified by naming several products, select any of such products.

C. For products specified by naming one or more products and "or approved", select any one specified product or submit request for substitution as specified.

1.04 INAPPROPRIATE PRODUCTS AND METHODS

A. If Contractor believes that any specified product, method, or system is inappropriate for use, he shall, if possible, so notify the Project Manager at least ten (10) working days prior to bid opening, and if not possible, such notice shall be given before performing work in question. If notice of objection is not received within the specified time limits, it will be assumed that Contractor agrees that specified products, methods, and systems are not inappropriate for use.

B. No asbestos containing materials are to be incorporated into the project. Certification signed by the General Contractor shall state that Asbestos Containing materials have not been installed under this project. Turn certification in to Project Manager no later than first payment application submittal. Recertify to Owner at substantial completion inspection.

1.05 PRODUCT SUBSTITUTIONS

A. Refer to Section 01630.

1.06 NUMBER OF PRODUCTS REQUIRED

A. Whenever in specifications a product is referred to in singular number, such reference shall include as many such products as are shown on Drawings are required to complete the Work.

1.07 PRODUCTS LIST

A. Submit to Project Manager complete list of major products proposed for use; Specification Section, include proprietary product name, manufacturer's name, and installing Subcontractor's name in accordance with requirement of Section 01340 Shop Drawing, Product Data and Samples.

1.08 MANUFACTURER'S INSTRUCTIONS

A. Perform work in accordance with Manufacturer's instructions.

B. Do not omit preparatory or installation procedures required by Manufacturer, unless specifically modified by Contractor Documents.

C. When Contract Documents require Work to comply with Manufacturer's instruction, obtain and distribute such instructions to parties performing work, including copies to Architect and Project Manager. Maintain one set at job site during installation and until acceptance.

D. Handle, install, connect, clean, condition, and adjust products in strict accord with such instructions and in conformance with specified requirements.

E. Should job conditions or specified requirements conflict with Manufacturer's instructions, consult Project Manager for further instructions.

F. Do not proceed with work without clear instructions.

PART 2. PRODUCTS (NOT USED)

PART 3. EXECUTION (NOT USED)

END OF SECTION

DELIVERY, STORAGE, AND HANDLING

PART 1. GENERAL

1.01 DESCRIPTION OF WORK

A. Provide for expeditious transportation and delivery of products to project site undamaged, on schedule to avoid delay of the Work.

B. Providing equipment and personnel at site to unload and handle products in manner to avoid damage to products.

C. Provide secure storage and protection for products to be incorporated into the Work, and maintenance and protection for products after installation and until completion of the Work.

1.02 DELIVERY

A. Arrange deliveries of products in accord with construction schedules and in ample time to facilitate inspection prior to installation.

B. Coordinate deliveries to avoid conflict with work and conditions at site. Contractor deliveries must not conflict with:

1. Work of other Contractors, or Owner.
2. Limitations of storage space.
3. Availability of equipment and personnel for handling products.
4. Owner's use of premises.

C. Deliver products in undamaged condition in original containers or packaging, with identifying labels intact and legible.

D. Partial deliveries of component parts of equipment shall be clearly marked to identify equipment, to permit easy accumulation of parts and to facilitate assembly.

E. Immediately upon delivery, inspect shipment to assure:

1. Product complies with requirements of contract documents and reviewed submittals.
2. Quantities are correct.
3. Containers and packages are intact, labels are legible.
4. Products are protected and undamaged. Minor damages may be repaired, provided finish items are equivalent in all respects to new work.

1.03 PRODUCT HANDLING

A. Provide equipment and personnel necessary to handle products, including those provided by Owner, by methods to prevent soiling or damage to products or packaging.

B. Provide additional protection during handling as necessary to prevent scraping, marring, or otherwise damaging products or surrounding surfaces.

C. Handle products by methods to prevent bending or over-stressing.

D. Lift heavy components only at designated lifting points.

1.04 STORAGE

A. Store products immediately on delivery and protect until installed in the Work. Store in accord with manufacturer's instructions, with seals and labels intact and legible.

B. Store products subject to damage by elements in substantial weather-tight enclosures.

1. Maintain temperatures with ranges required by manufacturer's instructions.
2. Provide humidity control for sensitive products, as required by manufacturer's instructions.
3. Store unpacked products on shelves, in bins, or in neat piles, accessible for inspection.

C. Exterior Storage

1. Provide substantial platforms, blocking, or skids to support fabricated products 4" above ground, prevent soiling or staining.
2. Cover products, subject to discoloration or deterioration from exposure to elements, with impervious sheet coverings. Avoid use of non-vented plastic or canvas shelters which could create humidity chambers. Provide adequate ventilation to avoid condensation.
3. Store loose granular materials in solid surfaces such as paved areas or provide plywood or sheet materials to prevent mixing with foreign matter.

a. Provide surface drainage to prevent flow or ponding of rainwater.
b. Prevent mixing of refuse or chemically injurious materials or liquids.

4. Provide exterior storage area within Contractor Secure area.

D. Arrange storage in manner to provide easy access for inspection.

1.05 MAINTENANCE OF STORAGE

A. Maintain periodic system of inspection of stored products on scheduled basis to assure that:

1. State of storage facilities is adequate to provide required conditions.
2. Required environmental conditions are maintained on continuing basis.
3. Surfaces of products exposed to elements are not adversely affected. Any weathering of products, coatings, and finishes is not acceptable under requirements of contract documents.

B. Mechanical and electrical equipment which requires servicing during long-term storage shall have complete manufacturer's instructions for servicing accompanying each item, with notice of enclosed instructions shown on exterior of package.

1.06 PROTECTION AFTER INSTALLATION

A. Provide protection of installed products to prevent damage from subsequent operations, usage or vandalism. Remove when no longer needed, prior to completion of work.

B. Control traffic to prevent damage to equipment and surfaces.

C. Provide coverings to protect finished surfaces from damage.

1. Cover projections, wall corners, jambs, sills, and soffits of openings, in areas used for traffic and for passage of products in subsequent work.
2. Protect finished floors and stairs from dirt and damage.

a. In areas subject to foot traffic, secure heavy paper, sheet goods, and other

materials in place.
b. For movement of heavy products, lay planking or similar materials in place.
c. For storage of product, lay tight wood sheathing in place.

D. Waterproofed and Roofing Surfaces

1. Prohibit use of surface for traffic and any kind, or for storage of any products.
2. When some activity must take place in order to carry out Contract, obtain recommendations from installer for protection of surface.

a. Install recommended protection, remove on completion of that activity.
b. Restrict use of adjacent unprotected areas.

1.07 DAMAGED PRODUCTS

A. Remove damaged or deteriorated materials from the premises. Replace materials which have been damaged.

PART 2. PRODUCTS (NOT USED)

PART 3. EXECUTION (NOT USED)

END OF SECTION

SUBSTITUTION AND PRODUCT OPTION

PART 1. GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

1.02 DESCRIPTION OF WORK

A. Contractor's options in selection of products.

B. Requests for substitution of products.

1.03 RELATED REQUIREMENTS

A. Section 00100 - Instruction to Bidders.

B. Section 00700 and 00800 - General Conditions and Supplementary General Conditions.

C. Section 01340 - Shop Drawings, Product Data and Samples.

1.04 CONTRACTOR'S OPTIONS

A. Reference to any equipment, material, article, or patented process by trade name, make or catalog number shall be regarded as establishing a standard of quality and characteristics of products that will be satisfactory and shall not be construed as limiting competition.

B. Whether or not specifically named equipment or material is followed by the term “equivalent" or “equivalent product" or “approved equal", it shall not exclude other manufacturer's equipment or materials from consideration, unless "NO SUBSTITUTIONS" called out in the specification sections. In this usage, the terms "equivalent" and "equal" or "approved equal" are interchangeable though a product or method considered for substitution may be equivalent to a specified product or method without actually being equal, by virtue of performance, appearance, and meeting specified or implied criteria.

C. No item will be considered for substitution prior to the bid opening. Consequently, the Bidder shall make its own determination if a substituted item will be equivalent to or better than that specified or indicated in regard to quality, workmanship, finish, space requirements, electrical requirements, performance and guarantees or warranties. Any change in bid and/or contract amount due to any subsequent rejection of product found "not equivalent" will not be considered.

D. After the Notice to Proceed the Contractor shall submit sufficient data in accordance with this Section to establish equality. The Owner's Representative shall be the sole judge of equality and acceptability.

E. Acceptance of substitute materials will not relieve the Contractor of the responsibility for any changes in the Contractor's own work or in the work of other trades caused by the substitution. Any additional costs resulting from substitutions are the responsibility of the Contractor.

1.05 SUBSTITUTION PROCEDURE

A. Requests for substitutions of products will be considered only within 90 calendar days after Notice to Proceed. Subsequent requests will be considered only when judged to be in the best interest of the Owner.

B. Substitutions will not be considered when indicated on shop drawings or product data submittals without separate formal request, when requested directly by subcontractor or

supplier, or when acceptance will require substantial revision of Contract Documents.

C. Substitute products shall not be ordered or delivered without written acceptance.

D. Submit separate request for each substitution. Document each request with complete data substantiating compliance of proposed substitution with requirements of Contract Documents.

E. Identify products by specifications section and article numbers. Provide manufacturer's name and address, trade name of product, and model or catalog number. List fabricators and suppliers as appropriate.

F. Attach product data as specified in Section 01340 and the following:

1. Give itemized comparison of proposed substitution with specified product and listing variations.
2. Give quality and performance comparison between proposed substitution and specified product.
3. List availability of maintenance services and replacement materials.
4. State effect of substitution on construction schedule, and changes required in other work or products.

G. If no requests for substitutions have been received within time frame stated above, it will be assumed that construction will proceed with equipment, materials and products called for in Contract Documents.

If this is subsequently found not to be the case, the Owner reserves the right to demand that unapproved item be removed and replaced with specified item.

1.06 CONTRACTOR REPRESENTATION

A. Request for substitution constitutes a representation that Contractor has investigated proposed product and has determined that it is equal to or superior in all respects to specified product.

B. Contractor shall provide same warranty or bonds for substitution as for specified product.

C. Contractor shall coordinate installation of accepted substitute, making such changes as may be required for work to be complete in all respects, specifically including any related redesign costs.

D. Contractor waives claims for additional cost caused by substitution which may subsequently become apparent.

PART 2. PRODUCTS (NOT USED)

PART 3. EXECUTION (NOT USED)

END OF SECTION

(Except for “Substitution Request Form,” 1 page)

SUBSTITUTION REQUEST FORM

TO: _____

PROJECT: _____

We hereby submit for your consideration the following product instead of the specified item for the above project:

Section_____Page_____Paragraph_____Specified Item_____

Proposed Substitution: _____

Attach complete Product description, drawings, photographs, performance and test data, and other information necessary for evaluation.

Will changes be required to building design in order to properly install proposed substitution? Yes____ No ____ If Yes, explain: (Add second sheet).

Will the undersigned pay for changes to the building design, including engineering and drawing costs, caused by requested substitution? Yes____ No ____.

What differences exist between proposed substitution and specified item?

Does substitution affect Drawing dimension? Yes____ No ____ If Yes, explain: (Add second sheet.)

What affect does substitution have on other trades?

Does Manufacturer's warranty of proposed substitution differ from that specified?
Yes____ No ____ If Yes, explain: (Add second sheet.)

Will substitution affect Progress Schedule? Yes____ No ____ If Yes, explain: (Add second sheet.)

Will substitution cost more than specified Product? Yes____ No ____ If Yes, explain: (Add second sheet.)

Do substitutions affect the Commissioning process and checklists included in Division 17? Yes____ No ____ If any, attach a marked-up copy of the appropriate Checklist(s) from Division 17 for Owner's approval.

Will maintenance and service parts be locally available for substitution? Yes____ No ____ If Yes, explain: (Add second sheet.)

Submitted by:

Signature:_____

Firm:_____

Address:_____

City:_____

Date:_____

For Owner's Representative's Use Only:

Accepted ( ) Accepted as Noted ( )
Not Accepted ( ) Received Too Late ( )

By:_____

Date:_____

Remarks:_____

Phone:_____

STARTING OF SYSTEMS

PART 1. PART GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

1.02 SECTION INCLUDES

A. Starting systems.

B. Demonstration and instructions.

C. Testing, adjusting, and balancing.

1.03 RELATED SECTIONS

A. Section 01730 - Operation and Maintenance Data.

1.04 STARTING SYSTEMS

A. Coordinate schedule for start-up of various equipment and systems.

B. Notify Owner seven days prior to start-up of each item.

C. Verify that each piece of equipment or system has been checked for proper lubrication, drive rotation, belt tension, control sequence, or for other conditions which may cause damage.

D. Verify that tests, meter readings, and specified electrical characteristics agree with those required by the equipment or system manufacturer.

E. Verify wiring and support components for equipment are complete and tested.

F. Execute start-up under supervision of applicable manufacturer’s representative in accordance with manufacturers’ instructions.

G. When specified in individual specification Sections, require manufacturer to provide authorized representative to be present at site to inspect, check, and approve equipment or system installation prior to start-up, and to supervise placing equipment or system in operation.

1.05 DEMONSTRATION AND INSTRUCTIONS

A. Demonstrate operation and maintenance of Products to Owner’s personnel two weeks prior to date of Substantial Completion.

B. In a classroom environment located at the Project site, demonstrate, and provide instruction for the Project equipment by a manufacturer’s representative who is knowledgeable about the Project.

C. For equipment or systems requiring seasonal operation, perform demonstration for other season within nine months.

D. Utilize operation and maintenance manuals as basis for instruction. Review contents of manual

with Owner's personnel in detail to explain all aspects of operation and maintenance.

E. Demonstrate start-up, operation, control, adjustment, troubleshooting, servicing, maintenance, and shutdown of each item of equipment at agreed time, at equipment location.

F. Prepare and insert additional data in operations and maintenance manuals when need for additional data becomes apparent during instruction.

G. The amount of time required for instruction on each item of equipment and system is that specified in individual sections.

1.06 TESTING, ADJUSTING, AND BALANCING

A. The independent firm will perform services specified in Section 01410 and 01651.

B. Reports will be submitted by the independent firm to the Owner indicating observations and results of tests and indicating compliance or non-compliance with the requirements of the Contract Documents.

PART 2. PART PRODUCTS (NOT USED)

PART 3. PART EXECUTION (NOT USED)

END OF SECTION

SYSTEM COMMISSIONING

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and General Provisions of contract, including General and Supplementary Conditions and other Divisions of these Specifications, apply to work of this section.

1.02 DEFINITION

A. Building Commissioning work is a joint team effort to ensure that all equipment and systems have been completely and properly installed and put into services. The commissioning work will begin only after all systems are 100% complete and functional. The factory start-up of all equipment must have been carried out as well as control system completion and start-up and balancing. The team is made up of representatives from the owner's Engineer and Contractor's organizations.

B. The Contractor shall schedule system commissioning. The trades represented during the commissioning include sheet metal, piping and fitting, refrigeration, controls and balancing. The lead tradesmen for each trade who actually performed the work is to be present. All trades are to be present as scheduled during the commissioning session. The balancing and control contractors may be released when their portions of work have been completed. The Contractor will submit a schedule of activities for commissioning at least 30 days prior to beginning commissioning. A suggested schedule outline is as follows:

1. Day One (Monday) Owner and Engineer; Mechanical Contractor optional.
2. Day Two (Tuesday) Owner, Engineer, Balancing Contractor, Control Contractor and Mechanical Contractor.
3. Day Three (Wednesday) Owner, Engineer, Balancing Contractor, Control Contractor, Mechanical Contractor including Sheet Metal Contractor and Fitter.
4. Day Four (Thursday) Owner, Engineer, Mechanical Contractor, Sheet Metal Contractor, Fitter and Refrigeration Contractor.
5. Day Five (Friday) Refrigeration Contractor and all parties from day four to complete tasks not completed previously.

1.03 DOCUMENTS

A. The following documents shall be assembled and bound into the operating and maintenance manuals and delivered according to Section 01730, Maintenance Data.

1. Plumbing sanitization certified.
2. Certificates of Completion from the following Contractors:
   a. Sheet Metal
   b. Plumbing and Piping
   c. Automatic Temperature Control
   d. Refrigeration
   e. Fire Protection
3. Balancing report including duct pressure test.
4. Boiler startup certificate, including stack gas test.
5. Hydronic system water analysis report.
6. Steam boiler water analysis report.
7. All operating and maintenance data as described in Section 01730.

B. Record Drawings will be submitted to District according to Section 01700, Contract

Closeout.

1.04 SCOPE OF WORK

A. The work included under this section includes a complete and thorough investigation of all systems in order to ensure proper installation and operation of all components and systems. The following systems will be evaluated:
1. Automatic temperature controls.
2. Instrumentation (gauges, thermometers, etc.)
3. Air handling equipment.
4. Air Distribution and exhaust systems.
5. Boilers.
6. Hydronic heating and steam distribution systems.
7. Refrigeration equipment.
8. Fire protection.
9. Labeling, marking and color coding.

PART II - PRODUCTS

2.01 VALVE TAGS

A. Tag all valves with round, numbered, brass tags. Fasten to valve stem with beaded chain. In boiler room and fan room provide a framed, typewritten directory under glass. Directory shall list all valve tag numbers, service of valve, system valve is located in, location of valve and whether valve is normally open or closed. Provide a separate tag sequence for each service. Each service prefix to be abbreviation used for that service (sprinkles, S-1, S-2, etc.; Air, A-1, A-2, etc.)

2.02 EQUIPMENT LABELS

A. Label all equipment with heat resistant, laminated plastic labels having engraved lettering 1/2-inch high and fastened in place with rivets, screws or pressure sensitive, double sided tape, on back of label. Examples “Pump P-1,” “Water Heater No. 1,” “Exhaust Fan Ref-2,” Air Handling Unit AHU-1,” etc.

2.03 PIPING LABELS

A. Label all service piping with adhesive backed, flexible, vinyl labels, sealed in clear polyester film. Secure labels with directional flow adhesive vinyl banding tape. Labels and tape to comply with ANSI A13.1-1982 for color and size.

B. Manufacturer: Baker, Emed, Setmark, Seton.

2.04 WATER TREATMENT CHEMICALS

A. Obtain the services of a professional water treatment firm for testing the steam boiler water and prescribing the treatment chemicals.

B. Provide a one-year supply of treatment chemicals to maintain the boiler water at or below the following conditions.
1. Neutralized specific conductance.
2. Total alkalinity 600 ppm.
3. Suspended solids 250 ppm.
4. Silica 90 ppm.

The treatment will include a filming amine additive for protection of the condensate piping.

C. Supply materials are to be based on boiler operation of 10 hours per week at 50% to 100% of capacity with 50% of condensate being returned to system.

PART III - EXECUTION

3.01 SYSTEM COMMISSIONING

A. The following procedures will be verified during the commissioning process. All procedures are to be checked and carried out by the contractor prior to commissioning.

3.02 PRELIMINARY WALK THROUGH

A. A preliminary walk through to provide a visual check of the various systems to verify that all components are properly installed. The following items will be observed.

B. Air Distribution:
1. Mounting and support of equipment.
2. Noise, vibration, air and water leaks.
3. Air filtration, presence of dampers, diffusers, grilles, fire dampers and access doors.
4. Presence of thermostats and other adjustable temperature control devices.
5. Presence of smoke sensors and other safety devices.
6. Instrumentation, gauges, thermometers, flow measuring devices.
7. Hoods and exhaust systems.

C. Plumbing and Piping Systems:
1. Mounting support of equipment.
2. Noise, vibration and leaks.
3. Strainers, values fixtures and instrumentation and flow measuring or control.

D. Heating and Cooling Equipment:
1. General installation and service access.
2. Proper cycling.
3. Excessive noise, vibration or leads.
4. Fuel storage, distribution instrumentation and filtration.
5. Presence of safety devices and controls.

E. Refrigeration Systems:
1. Compressor operation and lubrication.
2. Unit cooler operation.
3. Cooling fluid flow and control.
4. Temperature maintenance and instrumentation.
5. Vibration, excessive noise and leaks.

F. Fire Protection System:
1. General installation and compliance with approved shop drawings and design drawings.
2. Head locations.
3. Proper functioning of alarms.
4. NFPA certification - Chapter 13.
5. Locate spare heads, wrench and NFPA 13A manual.

G. Any discrepancies or deficiencies are to be noted for further investigation during the

detailed evaluation.

H. Verify that all cleaning has been completed.

I. Verify that all touch-up painting has been completed.

3.03 DETAILED EVALUATION

A. Air distribution systems:
1. Spot checks of approximately 10% of air outlets will be made. Engineer will select outlets and air balancer will demonstrate a reading of that outlet. Where appropriate, the thermostat will be adjusted to simulate full cooling, full heating, hood operation, etc.
2. Air balancer will demonstrate total air flow at each air handler at simulated full cooling and/or maximum fresh air.
3. Air balancer will demonstrate proper air flow at each fume hood, based on previously marked sash positions.
4. Air balancer will demonstrate proper air flow at each process hood.
5. Demonstrate proper room static pressure with respect to adjacent space(s).
6. Motor HP draw will be demonstrated at selected fan motors.
7. Discrepancies between balancing report and spot check results will be dealt with to correct any deficiencies. In the event that significant deficiencies are detected, the entire balancing procedures may be required to be repeated.
8. Any noted drafts or noisy air distribution devices will be evaluated and corrective action taken.
9. Any balancing related problems identified during the Preliminary Walk Through will be addressed and corrected.

B. Heat Transfer and Hydronic Systems:
1. Contractor will demonstrate that strainers have been cleaned by team observation of approximately 5 strainers selected by the Engineer. If significant debris is found in selected strainers, all strainers will be cleaned.
2. Balancer will demonstrate fluid flows at approximately 10% of flow control devices.
3. Selected pumps will have amp draws demonstrated.
4. Fluid temperatures and pressures will be observed at each system, and compared with design values.
5. Glycol concentration will be measured for compliance with design specifications.
6. Any noted deficiencies between the sample evaluations and the balancing report will be dealt with to correct any deficiencies. In the event that significant deficiencies are detected, the entire balancing procedures may be required to be repeated.
7. Any balancing related problems identified during the Preliminary Walk Through will be addressed and corrected.

C. HVAC Control Systems:
1. The Control Contractor will demonstrate the proper function of each control system, and instruct Owner’s operating personnel in the proper operation of the systems. The balancing contractor will be present to correct flows and assist in fine tuning system.
2. Control Contractor will demonstrate the proper functioning of the following devices:
a. Each thermostat to adequately control heating and cooling.
b. Each automatic damper and valve.
c. Fresh air and return air dampers.
d. Economizer operation.
e. Boiler, chiller and pump starting and stopping from program control.

f. Exhaust fan and air handler start and stop.
g. Variable air volume control of VAV air handlers, and tracking of associated return fan.
h. Variable air volume control of VAV exhaust fans
i. Freeze prevention control.

3. Control Contractor will point out proper labeling of each control device.
4. Control Contractor and Balancing Contractor will coordinate efforts as required until all functions of air distribution and hydronic systems have been fully demonstrated and have been accepted by the District and the Engineer.

D. Sheet Metal Contractor will demonstrate the following:
1. Proper voltage, overload heater size and rotation of each motor driven fan or air handling device.
2. Proper belt tension and drive alignment.
3. Proper clearance and deflection of spring isolation of fans and drives.
4. Proper installation of flexible connections.
5. Sealing of all ductwork per specification.
6. Complete insulation of ductwork and plenums and sound attenuation where required.
7. Completion of any deficiencies pointed out during balancing and control system commissioning.
8. Marking and labeling of each air handling device.
9. Proper shutdown of air handling systems in the event of presence of smoke or products of combustion.
10. Monitor bearings for heat buildup or noise.
11. Demonstrate that heating and cooling coil fins are straight.
12. Demonstrate operation and maintenance of humidification equipment.
13. Sheet Metal Contractor will correct any deficiencies noted during Preliminary Walk Through and Detailed Evaluation.
14. Correct any deficiencies discovered during Preliminary Walk Through and Detailed Investigation.

E. Each Contractor will explain any special features or intricacies of system operation to the building operating personnel. Items covered should include safety features, hazards to be aware of, precautions to be observed to avoid damage to equipment and any necessary seasonal adjustments which are required. Generally discuss service frequency of devices such as bearings, belt drives, filters, strainers, etc. Show maintenance and operating personnel where additional information can be found in the Operating and Maintenance Manuals.

F. Plumbing and Piping Contractor will demonstrate and explain the following:
1. The cleaning, degreasing and flushing of piping systems.
2. The proper filling of hydronic and chilled water systems.
3. Proper glycol concentration and Ph of hydronic and chilled water systems.
4. Piping and valve marking.
5. Equipment labeling.
6. Demonstrate proper operation of fuel supply system.
7. Demonstrate proper operation of sewage lift pump.
8. Demonstrate proper operation of sump pumps.
9. Tour facility and demonstrate proper installation and operation of plumbing fixtures and piping systems.
10. Demonstrate and explain chemical feed equipment.
11. Demonstrate operation of air compressor, deionized water equipment and other process equipment.
12. Correct any deficiencies discovered during Preliminary Walk through and Detailed

Investigation.

G. Refrigeration Contractor will instruct equipment operators and demonstrate and explain the following:
1. Proper charging and lubrication of each refrigeration system.
2. Vibration isolation of equipment.
3. Proper piping insulation.
4. Adequate air flow at cold diffusers.
5. Proper connection of piping.
6. Proper coolant flow and temperature.
7. Defrost of cold diffusers.
8. Maintenance of required temperature in cold boxes.
9. Proper maintenance and cleaning.
10. Labeling of equipment and control devices.
11. Verify proper voltage, rotation and overload heater sizing.
12. Correct any deficiencies noted during Preliminary Walk Through and Detailed Investigation.

3.04 CERTIFICATION

A. The following certificate will be signed by each trade listed, indicating that all commissioning work has been completed and that all systems are installed according to the contract documents and manufacturer's installation instructions. The Contractors further certify that all adjustment, lubrication, alignment and startup procedures have been carried out.

B. Individual Contractor Certifications: (see next page)

CERTIFICATE OF COMPLETION

(Building) _____

(Address) _____

_____

_____

1. Mechanical Contractor _____
(firm)

_____ _____ _____
(signature) (title) (date)

2. Sheet Metal _____
(firm)

_____ _____ _____
(signature) (title) (date)

3. Plumbing _____
(firm)

_____ _____ _____
(signature) (title) (date)

4. Fitting _____
(firm)

_____ _____ _____
(signature) (title) (date)

5. Balancing _____
(firm)

_____ _____ _____
(signature) (title) (date)

6. Controls _____
(firm)

_____ _____ _____
(signature) (title) (date)

7. Refrigeration _____
(firm)

_____ _____ _____
(signature) (title) (date)

8. Insulation _____
(firm)

_____ _____ _____
(signature) (title) (date)

9. Fire Protection _____
(firm)

_____ _____ _____
(signature) (title) (date)

10. Refrigeration _____
(firm)

_____ _____ _____
(signature) (title) (date)

11. Refrigeration _____
(firm)

_____ _____ _____
(signature) (title) (date)

12. Refrigeration _____
(firm)

_____ _____ _____
(signature) (title) (date)

The engineer of record has observed the commissioning process and acknowledges that it was carried out according to the contract documents.

_____ _____
(firm) (date)

_____
(signature)

The District has observed the commissioning and acknowledges that it was carried out to his satisfaction. The District acknowledges receipt of the following documents and services:

1. Operating and Maintenance Manuals
2. As-built Drawings
3. All Certificates
4. Operator Instruction

_____ _____
(organization) (date)

_____ _____ _____
(signature) (title) (date)

3.05 SYSTEM WARRANTY

A. The one-year warranty period which begins with beneficial use of the systems is the responsibility of the Contractor. It is the Contractor's responsibility to repair, adjust or replace any defective material and equipment during the warranty period. It is the Owner's responsibility to notify the Contractor of any deficiencies immediately.

B. During the warranty period, the Owner and building operators should not make any system adjustments, alterations of repairs without first contacting the Contractor. Adjustment of room thermostats may be made at building occupant's discretion without first contacting the Contractor. The Contractor should be contacted as soon as possible so that a permanent repair can be carried out. The MAINTENANCE/ REPAIR REQUEST FORM (see example at the end of this section) should be used to report and document system malfunctions. Requests must be signed by building superintendent.

C. Emergency repairs and adjustments may be made to prevent system or building components without first contacting the Contractor. Emergency procedures would include items such as repairing leaks, adjusting controls to prevent building freeze-up or other similar adjustments to prevent the building from becoming uninhabitable or unsafe.

D. Maintenance procedures which are the responsibility of the building Owner during the warranty period include:
   1. Replacement of air filters.
   2. Replacement of repair of any items which are broken or damaged by building users.
   3. Replacement of water softener salt.
   4. Replacement (if required) acid neutralization marble.
   5. Cleaning of oil separators or grease traps.

E. Maintenance / Repair Request:
   1. The form on the next page is to be used by the Owner and building occupants to document and report any malfunctions in mechanical systems.

MAINTENANCE / REPAIR REQUEST

Reported by _____ Phone (_____) _____ Date _____

Building Superintendent Signature _____

Describe Malfunction _____

_____

_____

Location (i.e. room number/above ceiling/etc.) _____

_____

Describe any Temporary Adjustments or Repairs _____

_____

_____

What is the Urgency of Repair _____

_____

Has this Been Reported by Telephone _____ to Whom _____

Name _____ Firm _____ Phone (___) _____

Date _____ Time _____ Action Promised _____

_____

Repairs Made _____

_____

_____

by _____ Firm _____ Date _____

Contractor's Comments _____

_____

_____

_____

_____

Certification that repairs have been satisfactorily completed

(Building Superintendent) _____ Date _____ Time_____

Send one copy of this form to Contractor. Place one copy of this form in the Building Operating and Maintenance Manual under the appropriate tab.

END OF SECTION

PROJECT CLOSE-OUT

PART 1 - GENERAL

1.01 GENERAL CONDITIONS

A. Definitions: Close-out is hereby defined to include general requirements near the end of contract time, in preparation for final acceptance, final payment, normal termination of contract, occupancy by Owner and similar actions evidencing completion of the work. Specific requirements for individual units of work are specified in sections of Division 2 through 16. Time of Close-out is directly related to “Substantial Completion”.

1.02 RELATED REQUIREMENTS SPECIFIED ELSEWHERE

A. General and Supplementary General Conditions

B. Section 01750: Warranty of Work after Final Payment

C. Section 01750: Certificate of Compliance

1.03 SUBSTANTIAL COMPLETION

A. When Contractor considers work substantially complete as defined in contract conditions, he shall submit to the Project Manager:

1. Written notice that work, or designated portion thereof, is substantially complete.
2. List of items to be completed or corrected.
3. Conditional Certificate of Occupancy from governing authorities.
4. Project Records and Contract Record Drawings.

B. Project Manager will at the mutually agreed time, make inspection to determine completion status.

1. Should Project Manager determine that work is not substantially complete:

   a. Project Manager will promptly notify Contractor, in writing, giving reasons therefore.
   b. Contractor will remedy work deficiencies and send second notice of substantial completion to Project Manager.
   c. Project Manager will re-inspect work, with his cost and/or expense for such to be the Contractor's responsibility.

2. When Project Manager concurs that work is substantially complete, the Architect will:

   a. Prepare Certificate of Substantial Completion accompanied with Contractor’s list of items to be completed or corrected, as verified and amended by the Project Manager and Architect.
   b. Submit certificate to Owner and Contractor for their written acceptance of the responsibilities assigned to them in the certificate.

1.04 FINAL INSPECTION

A. When Contractor considers work complete, he shall submit written certification that:

1. Contract documents have been reviewed.
2. Contractor has inspected work for compliance with contract documents.
3. Work has been completed in accordance with contract documents.

4. Equipment and systems have been tested and operated in presence of Owner's representative and are operational.
5. Copy of substantial completion punch lists stating that each item has been completed or otherwise resolved for acceptance.

B. Project Manager will, at the mutually agreed time, inspect the work to verify completion status.

1. Should the Project Manager consider work incomplete or defective:

a. Project Manager will promptly notify Contractor in writing of any incomplete or defective work.
b. Contractor shall immediately remedy deficiencies, and send written certification to Project Manager that work is complete.
c. Project Manager will re-inspect work.

2. When Project Manager finds the work acceptable under contract documents, he will request Contractor to make closeout submittals.

1.05 RE-INSPECTION FEES

A. Should Project Manager and or Engineer be required to make more than one substantial and/or final inspection due to Contractor's failure to correct specified deficiencies, the Contractor shall bear all costs made necessary by such additional inspections.

1.06 SUBMITTALS

A. Record Drawings

1. Prior to Final Completion of the Project, the Contractor and/or Subcontractors under his direction, shall submit records of changes on prints to Project Manager.
2. Accompany submittal with transmittal letter, to Project Manager, containing:

a. Date
b. Project title and number
c. Contractor's name and address
d. Title and number of each record document
e. Certification that each document as submitted is complete and accurate.
f. Signature of Contractor, or his authorized representative.

3. Provide drawings and special system drawings on CD in AutoCad format.

B. Project Record Documents

C. Operating and Maintenance Data

D. Building Official's Certificate of Occupancy (MUST BE RECEIVED IN TIME TO ALLOW OCCUPANCY ON DATE REQUIRED IN CONTRACT DOCUMENTS).

E. Warranty of Work after Final Payment Section 01750

F. Certificate of Compliance Section 01750

G. AHERA Exclusion document Section 01750

H. Department of Revenue Tax Clearance Section 01750

I. Department of Labor Tax Clearance Section 01750

J. Department of Labor Notice of Completion of Public Works Section 01750

K. Certificate of Domestic water disinfection.

L. Evidence of Payments and Release of Liens

1. Contractor's Affidavit of Payment of Debt and Claims.
2. Contractor's Affidavit of Release of Liens including the following:

    a. Consent of Contractor's Surety to Final Payment.
    b. Contractor's Release of Waiver of Liens.
    c. Separate releases of Waivers of Lien for each subcontractor, supplier, and others with lien rights against Owner’s property.

M. Storm Water Pollution Prevention Plan (SWPPP) and associated documents.

1. A copy of the Notice of Intent (NOI) and the plan review location notice shall be posted in the project office on site.
2. A copy of the SWPPP shall be retained in the project office during construction.
3. All records relating to the SWPPP, as well as the Plan, the NOI, and NOT shall be retained by the Contractor and the Municipality of Anchorage for three years after the NOT is issued.
4. Copies of all SWPPP documents are to be delivered to the Municipality of Anchorage and the Anchorage School District upon completion of the project and before final closeout.

N. Closeout Checklist Section 01750

1. A closeout checklist is provided for convenience in tracking the necessary documentation and deliverables for project closure. This checklist should be updated and submitted with each closeout deliverable.

1.07 FINAL APPLICATION FOR PAYMENT

A. Follow procedures specified in General and Special Conditions, and also note miscellaneous prerequisites for final payment noted in this section.

PART 2. PRODUCTS (NOT USED)

PART 3. EXECUTION (NOT USED)

END OF SECTION

CLEANING

PART 1. - GENERAL

1.01 DESCRIPTION

A. Execute cleaning, during progress of the work, and at completion of the work.

1.02 DISPOSAL REQUIREMENTS

A. Conduct cleaning and disposal operations to comply with codes, ordinances, regulations, and anti-pollution laws.

PART 2. - PRODUCTS

2.01 MATERIALS

A. Use only those cleaning materials which will not create hazards to health or property and which will not damage surfaces.

PART 3. - EXECUTION

3.01 DURING CONSTRUCTION

A. Execute periodic cleaning to keep the work, the site, and adjacent areas free from accumulations of waste materials, rubbish, and debris, resulting from construction operations.

B. Provide on-site containers for the collection of waste materials, debris, and rubbish.

C. Remove waste materials, debris, and rubbish from the site periodically and dispose of.

3.02 DUST CONTROL

A. Clean interior spaces prior to the start of finishing painting and continue cleaning on an as-needed basis until painting is finished.

B. Schedule operations so that dust and other contaminants resulting from cleaning process will not fall on wet or newly coated surfaces.

3.03 FINAL CLEANING

A. Employ skilled workmen for final cleaning.

B. Remove grease, mastic, adhesives, dust, dirt, stains, fingerprints, labels, and other foreign materials from sight-exposed interior and exterior surfaces.

C. Prior to final completion, or Owner occupancy, the Contractor shall conduct an inspection of sight-exposed interior surfaces and all work areas to verify that the entire work is clean.

END OF SECTION

PROJECT RECORD DOCUMENTS

PART 1. - GENERAL

1.01 REQUIREMENTS INCLUDED

A. Maintenance of record documents and samples.

B. Submittal of record documents and samples.

1.02 RELATED REQUIREMENTS

A. Document 00700 - General Conditions.

B. Section 01300 - Submittals.

C. Section 01340 - Shop drawings, Product data and Samples.

D. Section 01700 - Project closeout.

E. Individual Specifications Sections: Manufacturer's certificates and certificates of inspection.

1.03 MAINTENANCE OF DOCUMENTS AND SAMPLES

A. In addition to requirements in General Conditions, maintain at the job site for Owner's use one record copy of:

1. Contract Drawings.
2. Specifications.
3. Addenda.
4. Change orders and other modifications to the Contract.
5. Reviewed shop drawings, product data and samples.
6. Field test records.
7. Inspection certificates.
8. Manufacturer's certificates.
9. Request for Information (RFI)
10. Request for Proposal (RFP)
11. Current Construction Network.

B. Store record documents and samples in the field office apart from the documents used for construction.

C. Label and file record documents and samples in accordance with Section number listings in Table of Contents of this Project Manual. Label each document "PROJECT RECORD" in neat, large, printed letters.

D. Maintain record documents in a clean, dry and legible condition. Do not use record documents for construction purposes.

Keep record documents and samples available for inspection by the Project Manager.

1.04 RECORDING

A. From the copies of Contract Documents to be furnished by Project Manager, the Contractor and/or Subcontractors shall record on a set of clean, new prints each and every change that is made, at time it is made, in red. This includes any changes that are made in partitions, doors, or otherwise in arrangement of construction of buildings as well as a complete record of exact manner in which electrical and mechanical work, piping, etc., are installed. All Change Orders, RFI's, and Information Bulletins shall be incorporated. Dimensions shall be included where necessary to accurately locate piping and other items that will be concealed underground or in finished building that may later be necessary to service.

B. Contract Drawings: Legibly mark to record actual construction.

1. Horizontal and vertical location of underground utilities and appurtenances referenced to permanent surface improvements.
2. Field changes of dimensions and detail.
3. Changes made by Change Order and other modifications.
4. Details not on original contract drawings.
5. References to related shop drawings and modifications.

C. Shop Drawings: Maintain as record documents, legibly annotate appropriate drawings to record changes made after review.

D. Specifications and Addenda: Legibly mark up each section to record:

1. Changes made by Change Order.
2. Manufacturer, trade name and catalog number of each product actually installed, particularly optional items and substitute items.
3. Changes made by addenda and modifications.
4. Other matters not originally specified.

E. Label each document "PROJECT RECORD" in printed letters.

F. Keep record documents current. No progress payments will be made until record documents are verified by the Project Manager as being current.

G. Do not permanently conceal any work until required information has been recorded.

H. Methodology:

1. Changes to Work are described by source documents, including, but not limited to, Field Directives (FD), Information Bulletins (IB), Requests for Information (RFI), and Requests for Proposals (RFP), and their attachments. (Reference Section 00700, Article 12.)
2. Project Record drawings are to completely and clearly reflect all Changes to Work by graphically showing actual changes to dimensions, locations, materials, assemblies, and other conditions; by graphically deleting conditions replaced by such changes; and by indicating applicable source document's reference number. Such reference number shall not be the sole representation of Changes to Work shown on Project Record drawings.
3. Where A/E furnishes supplemental drawings, Project Record drawings are to show both the A/E's supplemental drawing reference number and the source document's reference number at the affected location.

1.05 SUBMITTAL

A. Prior to Final Completion of the Project, the Contractor and/or Subcontractors under his direction, shall submit records of changes on prints to Project Manager.

B. Accompany submittal with transmittal letter, to Project Manager, containing:

1. Date
2. Project title and number
3. Contractor's name and address
4. Title and number of each record document
5. Certification that each document as submitted is complete and accurate.
6. Signature of Contractor, or his authorized representative.

PART 2. - PRODUCTS (NOT USED)

PART 3. - EXECUTION (NOT USED)

END OF SECTION

OPERATION AND MAINTENANCE DATA

PART 1. GENERAL

1.01 SECTION INCLUDES

A. Format and content of manuals.

B. Instruction of Owner's personnel.

C. Schedule of submittals.

1.02 RELATED SECTIONS

A. Section 01300 - Submittals

B. Section 01400 - Quality Control

C. Section 01420 - Special Inspections

D. Section 01410 - Testing Laboratory Services

E. Section 01600 - Material and Equipment

F. Section 01700 - Contract Closeout

G. Section 01750 - Closeout Forms

H. Individual Specifications Sections: Specific requirements for operation and maintenance data.

1.03 QUALITY ASSURANCE

A. Prepare instructions and data by personnel experienced in maintenance and operation of described products.

1.04 FORMAT

A. Prepare data in the form of an instructional manual.

B. Electronic: Optical Character Recognition (OCR) formatted pdf document.

C. Cover: Identify each pdf with a title “OPERATION AND MAINTENANCE INSTRUCTIONS”; identify title of Project; identify subject matter of contents.

D. Provide bookmarked pdf for each separate product and system, with typed description of product and major component parts of equipment.

E. Text: Manufacturer’s printed or typewritten data.

F. Drawings: Provide with O&M documents.

G. Contents: Prepare a Table of Contents for each volume, with each Product or System description identified, in three parts as follows:

1. Part 1: Directory, listing names, addresses, and telephone numbers of Architect/Engineer, Contractor, Subcontractors, and major equipment suppliers.

2. Part 2: Operation and maintenance instructions arranged by and subdivided by specification section. For each category, identify names, addresses, and telephone numbers of Subcontractors and suppliers. Identify the following:

    a. Significant design criteria.
    b. List of equipment.
    c. Parts list for each component.
    d. Operating instructions.
    e. Maintenance instructions for equipment and systems.
    f. Maintenance instructions for finishes, including recommended cleaning methods and materials, and special precautions identifying detrimental agents.

3. Part 3: Project documents and certificates, including the following:

    a. Shop drawings and product data.
    b. Air and water balance reports.
    c. Certificates.
    d. Photocopies of warranties and bonds.

1.05 CONTENTS, EACH VOLUME

A. Table of Contents: Provide title of Project; names, addresses, and telephone numbers of Architect/Engineer, Subconsultants, and Contractor with name of responsible parties; schedule of products and systems, indexed to content of the volume.

B. For Each Product or System: List names, addresses and telephone numbers of Subcontractors and suppliers, including local source of supplies and replacement parts.

C. Product Data: Mark each sheet to clearly identify specific products and component parts, and data applicable to installation. Delete inapplicable information.

D. Drawings: Supplement product data to illustrate relations of component parts of equipment and systems, to show control and flow diagrams. Do not use Project Record Documents as maintenance drawings.

E. Typed Text: As required to supplement product data. Provide logical sequence of instructions for each procedure, incorporating manufacturer's instructions specified in Section 01400.

F. Warranties and Bonds: Bind in copy of each.

1.06 MANUAL FOR MATERIALS AND FINISHES

A. Building Products, Applied Materials, and Finishes: Include product data, with catalog number, size, composition, and color and texture designations. (Provide information for re-ordering custom manufactured Products.)

B. Instructions for Care and Maintenance: Include manufacturer's recommendations for cleaning agents and methods, precautions against detrimental agents and methods, and recommended schedule for cleaning and maintenance.

C. Moisture Protection and Weather Exposed Products: Include product data listing applicable reference standards, chemical composition, and details of installation. Provide recommendations for inspections, maintenance, and repair.

D. Additional Requirements: As specified in individual Product specification sections.

E. Provide a listing in Table of Contents for design data.

1.07 MANUAL FOR EQUIPMENT AND SYSTEMS

A. Each Item of Equipment and Each System: Include description of unit or system, and component parts. Identify function, normal operating characteristics, and limiting conditions. Include performance curves, with engineering data and tests, and complete nomenclature and model number of replaceable parts.

B. Panelboard Circuit Directories: Provide electrical service characteristics, controls, and communications; typed.

C. Include color coded wiring diagrams as installed.

D. Operating Procedures: Include start-up, break-in, and routine normal operating instructions and sequences. Include regulation, control, stopping, shutdown, and emergency instructions. Include summer, winter, and any special operating instructions.

E. Maintenance Requirements: Include routine procedures and guide for troubleshooting; disassembly, repair, and reassembly instructions; and alignment, adjusting, balancing, and checking instructions.

F. Provide servicing and lubrication schedule, and list of lubricants required.

G. Include manufacturer's printed operation and maintenance instructions.

H. Include sequence of operation by controls manufacturer.

I. Provide original manufacturer’s parts list, illustrations, assembly drawings, and diagrams required for maintenance.

J. Provide control diagrams by controls manufacturer as installed.

K. Provide Contractor’s coordination drawings, with color-coded piping diagrams as installed.

L. Provide charts of valve tag numbers, with location and function of each valve, keyed to flow and control diagrams.

M. Provide list of original manufacturer's spare parts, current prices, and recommended quantities to be maintained in storage.

N. Include test and balancing reports as specified.

O. Additional Requirements: As specified in individual Product specification sections.

P. Provide a listing in Table of Contents for design data, with tabbed (fly sheet indexed) and space for insertion of data.

1.08 MANUALS

A. Operating and Maintenance Manuals: Submit electronic manual for each identified category.

1. Air Balance Report
2. Building Commissioning Reports
3. Materials and Finishes Manual
4. Equipment and Systems Manual
5. Digital and Pneumatic Controls Manual
6. Fire Systems Manual

B. Warranty and Special Warranty Manual: Submit electronic manuals.

1.09 INSTRUCTION OF OWNER PERSONNEL

A. Before final inspection, instruct Owner's designated personnel in operation, adjustment, and maintenance of products, equipment, and systems, at agreed upon times.

B. For equipment requiring seasonal operation, provide instructions for all seasons

C. Use operation and maintenance manuals as basis for instruction. Review contents of manual with personnel in detail to explain all aspects of operation and maintenance.

D. Prepare and insert additional data in Operation and Maintenance Manual when need for such data becomes apparent during instruction.

1.10 SUBMITTALS

A. Submit copies of preliminary draft or proposed formats and outlines of contents before start of Work. Project Manager will review draft and return copy with comments.

B. For equipment, or component parts of equipment put into service during construction and operated by Owner, submit advance copy of documents within ten days after acceptance. Include same information within final Operations and Maintenance documents.

C. Submit draft copy of completed volumes 60 days following acceptance of Project Submittals. Allow 20 days for Architect review and return to Contractor. Provide Contractor resubmittal within 14 days. Allow 14 days for Architect review of resubmittal. Revise contents of all document sets as required prior to final submission.

D. Submit fully approved volumes within 115 days after acceptance of Submittals or 10 days prior to Substantial Completion, whichever occurs first.

PART 2. PRODUCTS (NOT USED)

PART 3. EXECUTION (NOT USED)

END OF SECTION

CLOSEOUT FORMS

PART 1. - GENERAL

1.01 The following forms are to be submitted by the Contractor prior to final project closeout.

1.02 CERTIFICATION OF SUBSTANTIAL COMPLETION

A. Use Anchorage School District Form 101 attached herein.

1.03 CONTRACTOR'S AFFIDAVIT OF PAYMENT OF DEBTS AND CLAIMS

A. Use Anchorage School District Form 102 attached herein.

1.04 RELEASE ON CONTRACTS

A. Use Anchorage School District Form 103 attached herein.

1.05 CONSENT OF SURETY COMPANY TO FINAL PAYMENT

A. Use Anchorage School District Form 104 attached herein.

1.06 CONSENT OF SURETY TO REDUCTION IN OR PARTIAL RELEASE OF RETAINAGE

A. Use Anchorage School District Form 105 attached herein.

1.07 CERTIFICATE OF COMPLIANCE

A. The Contractor shall submit a notarized Certificate of Compliance, contained in this section, with his application for Final Payment.

1.08 WARRANTY OF WORK AFTER FINAL PAYMENT

A. The Contractor shall furnish to the Owner a notarized Warranty of Work after Final Payment, contained in this section, with his application for Final Payment.

1.09 AHERA EXCLUSION DOCUMENT

A. The Contractor shall furnish to the Owner a signed AHERA Exclusion Document, contained in this section, with his application for Final Payment.

1.10 DEPARTMENT OF LABOR NOTICE OF COMPLETION OF PUBLIC WORKS

A. The Contractor shall furnish to the Owner a Notice of Completion of Public Works form approved by the Department of Labor with his application for Final Payment.

1.11 DEPARTMENT OF REVENUE TAX CLEARANCE REQUEST FORM

A. For projects funded through the Department of Education (debt reimbursement or DEED grants), the Contractor shall furnish to the Owner a Tax Clearance Request Form approved by the Department of Revenue with his application for Final Payment.

1.12 DEPARTMENT OF LABOR TAX CLEARANCE REQUEST FORM

A. For projects funded through the Department of Education (debt reimbursement or DEED

grants), the Contractor shall furnish to the Owner a Tax Clearance Request Form approved by the Department of Labor, with his application for Final Payment.

1.13 CLOSEOUT CHECKLIST

A. The closeout checklist is designed to assist the contractor and project manager in the process of completing the project.

CERTIFICATE OF SUBSTANTIAL COMPLETION

Project: _____ Contract Number: _____

Contractor: _____ Contract Date: _____

Architect: _____ Date of Issuance: _____

Owner: ANCHORAGE SCHOOL DISTRICT
1301 Labar Street
Anchorage, Alaska 99515

Project Description:

The work performed under this contract has been reviewed and found to be substantially complete. The date of Substantial Completion is hereby established as: _____

_____

Definition of Date of Substantial Completion:
The date of substantial completion of the project is the date certified by the Owner when the work is substantially complete in accordance with, and defined in the Contract Documents.

A list of items to be completed or corrected, prepared by the Owner and verified and amended by the Architect is appended hereto. The failure to include any items or such list does not alter the responsibility of the Contractor to complete the project in accordance with the Contract Documents.

The Contractor will complete or correct the work on the list of items appended hereto within 30 days from the date of substantial completion.

The responsibilities of the Owner and the Contractor for maintenance, heat, utilities, and insurance shall be as follows: _____

_____

In reliance upon the certification of the Contractor and the Architect, the Owner hereby accepts the project as substantially complete. In accordance with the Contract Documents, the Owner hereby elects to assume occupancy of _____ _____

_____ at _____ a.m./p.m. on
_____ .

Owner: **ANCHORAGE SCHOOL DISTRICT**

By: _____ Title: _____ Date: _____

Architect:

By: _____ Title: _____ Date: _____

Contractor:
By: _____ Title: _____ Date: _____
ASD 101 (01/03)

CONTRACTOR'S AFFIDAVIT OF PAYMENT OF DEBTS AND CLAIMS
ANCHORAGE SCHOOL DISTRICT

WHEREAS, by the terms of a contract dated entered into by the Anchorage School District, and for the construction of

The undersigned, pursuant to the General Conditions of the Contract for the construction, , hereby certifies that, except as listed below, he has paid in full or has otherwise satisied all obligations for all materials and equipment furnished, for all work, labor, and services performed, and for all known indebtness and claims against the Contractor for damages arising in any manner in connection with the performance of the Contract referenced above for which the District or his property might in any way be held responsible.

EXCEPTIONS:

IN WITNESS WHEREOF, the seal of the undersigned Contractor have been hereunto set this day of , at .

By

being first duly sworn, say that I am the agent for and executed the foregoing under authority of said company to do so; that I have read the same, know the contents thereof, and the matters set forth therein are as I truly believe.

By

Subscribed and sworn to before me this _____ day of , , at _____.

Notary Public in and for _____
My Commission Expires

ASDF Form 102

RELEASE ON CONTRACT
ANCHORAGE SCHOOL DISTRICT

WHEREAS, by the terms of a contract dated_____entered into by the Anchorage School District,

and_____for the construction of_____

_____, it is provided that:
"Neither the final payment nor the remaining retained percentage shall become due until the Contractor shall provide the Owner (1) with a waiver and release of liens, on the forms provided by the Owner, executed by the Contractor..."

NOW THEREFORE, in consideration of the premises and the payment by the Anchorage School District to the undersigned Contractor of the amounts due under the contract and any changes or modifications thereto, to wit, the sum

of $_____Dollars,
(Numbers)
(In Words)
the undersigned Contractor hereby releases and forever discharges the Anchorage School District including its property, particularly that real property known as:
_____ of the Anchorage School District, of and from all manner of debts, dues and sum or sums of money, accounts, claims, and demands whatsoever, in Law and in equity, under or by virtue of said contract, and warrants good title to all material, supplies and equipment installed or incorporated in the project and all work delivered to the premises, together with all improvements and appurtenances constructed thereon by:

_____to the Anchorage School District free of any claims, liens or encumbrances. Neither the undersigned nor any person, firm or corporation furnishing material or labor for any work covered by this Contract has any right to a lien upon the premises nor improvement thereon, except:
_____.

IN WITNESS WHEREOF, the signature of the undersigned Contractor has been hereunto set this

_____day of _____, 20_, at _____, Alaska.

Signature: _____

Printed Name: _____

I, _____, being first duly sworn, say that I am the agent for and executed the foregoing under authority of said company to do so; that I have read the same, know the contents thereof, and the matters set forth therein are as I truly believe.

Signature: _____

Subscribed and sworn to before me this _____day of _____, 20_, at _____, Alaska.

Notary Public in and for _____

My Commission Expires: _____. ASD Form 103

CONSENT OF SURETY COMPANY
TO FINAL PAYMENT

PROJECT:_____ **PROJECT NUMBER:**_____

TO: Anchorage School District **CONTRACT DATE:**_____

CONTRACTOR:_____

In accordance with the provisions of the Contract between the Owner and the Contractor as indicated above:

_____
(Surety Company)

on bond of

_____
(Contractor)

hereby approves of the final payment to the Contractor, and agrees that final payment to the Contractor shall not relieve the Surety Company of any of its obligations to **Anchorage School District, Owner** as set forth in said Surety Company's bond. Surety expressly agrees that any and all valid claims of sub-Contractors and all persons supplying labor or materials to the project will be satisfied by Contractor or Surety in a timely manner

IN WITNESS WHEREOF, the Surety Company has hereunto set its hand this

day of _____, 20_.

_____
Name of Surety Company

Attest

_____
Signature of Authorized Representative

_____
Title

ASD 104

CONSENT OF SURETY TO REDUCTION IN OR PARTIAL RELEASE OF RETAINAGE
ANCHORAGE SCHOOL DISTRICT

PROJECT: **PROJECT NUMBER**:

TO: **Anchorage School District** **CONTRACT DATE**:

CONTRACTOR:

In accordance with the provisions of the Contract between the Owner and the Contractor as indicated above, the:

_____ (Surety Company)

on bond of

_____ (Contractor)

HEREBY APPROVES OF THE REDUCTION IN OR PARTIAL RELEASE OF RETAINAGE to the Contractor as follows:

The surety agrees that such reduction in or partial release of retainage to the Contractor shall not relieve the Surety of any of its obligations to **ANCHORAGE SCHOOL DISTRICT, OWNER**

IN WITNESS WHEREOF, the Surety Company has hereunto set its hand this

day of .

_____
Name of Surety Company

Attest

_____
Signature of Authorized Representative

_____
Title

ASDF Form 105

CERTIFICATE OF COMPLIANCE

No final payment shall be made until the Contractor shall file with the Owner, prior to acceptance of the work, a notarized Certification of Compliance in the following form:

****

The Contractor does hereby certify that all work has been performed and materials supplied in accordance with the Drawings, Specifications and Contract Documents for the above work, and that:

No less than the prevailing rates of wages as ascertained by the governing body of the Contracting Agency has been paid to laborers, workmen and mechanics employed on this work;

There have been no unauthorized substitutions of Subcontractors; nor have any subcontracts been entered into without prior notice having been submitted to the Owner prior to the start of such subcontracted work;

No subcontract was assigned or transferred or performed by any Subcontractor other than the original Subcontractor, without prior notice having been submitted to the Owner together with the names of all Subcontractors;

All claims for material and labor and other paid service performed in connection with these specifications have been paid;

All monies due the State Industrial Accident Fund, the State Unemployment Compensation Trust Fund, the State Tax Commission, Hospital Associations and/or others have been paid.

In WITNESS WHEREOF, the undersigned has signed and sealed this instrument this

_____ day of _____, 20__.

_____
(Firm Name)

_____
(Signature)

_____
(Title)

(Attest)

(SEAL IF BIDDER IS A CORPORATION)

As determined necessary, evidence of compliance may be required to be submitted with and made a part of this Certificate of Compliance.

WARRANTY OF WORK

Prior to Final Payment, the Contractor shall furnish to the Owner a Warranty of Work in the following form:

****

The Contractor does hereby warrant all work and materials to be in full and complete accordance with the Contract Documents and Agreement between Owner and Contractor, and requirements appertaining thereto; that all work and materials are free from any and all defects and imperfections, and fully suitable for the use and purposes for which each and every part is intended. The Contractor also agrees that, should any defect develop or appear which the Project Manager or Owner's Representative finds was Not caused by improper use, the Contractor shall promptly, upon demand, fully correct, substitute and make good any such defective material without any cost to the Owner and will save the Owner harmless against any claim, demand, loss or damage by reason of any breach of this warranty.

The period of this warranty shall commence on the date of Substantial Completion.

The warranty shall continue to be in full force and effect for the period of one (1) year, except for those items for which a longer period of warranty is specifically stated in the Warranties for work in Technical Sections of the Specifications.

Warranties for work stated in Technical Section shall continue in full force and effect for the respective periods expressly stated.

In WITNESS WHERE, the undersigned has signed and sealed this instrument this

_____ day of _____, 20___.

(Firm Name) _____

(Signature) _____

(Title _____

(Attest) _____

(SEAL IF BIDDER IS A CORPORATION)

AHERA Exclusion Document

Contractor's Verification of Asbestos-Free Construction

Project: _____ **Project Number:** _____

Contractor: _____ **Date:** _____

To: Anchorage School District
Facilities Coordinator,
AHERA LEA Designated Person

To the best of our knowledge, no asbestos-containing building materials were installed in this project.

Attest: _____
Signature of Authorized Representative

_____
Title

Department of Labor and Workforce Development
Labor Standards and Safety Division
Wage and Hour Administration
www.labor.state.ak.us/lss/lss.htm

NOTICE OF COMPLETION OF PUBLIC WORKS

- This form must be typed or printed in ink.
- Fill in all blanks or form will be returned for correction (see back).
- Please allow a minimum of 30 working days for processing.

Additional Filing Fee May Be Required

ENTER YOUR FAX # _____
AND LIST YOUR MAILING ADDRESS BELOW

Contractor, company or agency name, address, city, state & ZIP + 4

Project Name		Contract #
Contract awarding agency		
Address		
City	State	ZIP + 4
Contract awarding agency contact person		Phone #
Location and city where work was performed		
DOLWD Project #		
Project Completion Date	/ /	

_____
Primary contractor (has contract with the public agency)

IF YOU HAVE ALREADY PAID $5,000 IN FEES FOR THIS PROJECT, OR IF YOU PREVIOUSLY PAID ALL FEES DUE AND DID NOT HAVE ANY INCREASES IN CONTRACT AMOUNTS ENTER "NONE" AND, SKIP TO CERTIFICATION. OTHERWISE, DESCRIBE ADDITIONAL WORK.

Description of additional contract/subcontract work performed	Name of contractor who performed this work	Amount of subcontract

CERTIFICATION: I hereby certify that the above information is correct. Enclosed is the additional filing fee computed at 1% of the total amount of all new contracts on this project, including the contract price of new work performed by the primary contractor not previously reported on the Notice of Work, up to a maximum of $5,000. I also certify that all contractors who worked on this project complied with prevailing wage requirements as described in AS 36.05.010- .110 and AS 36.10.007- .990.

Total value of additional subcontracts	$
Additional value of work performed by primary contractor +	$
Amount subject to fee	$
	Multiply by .01
Supplemental fee enclosed =	$
ROUND FEES TO NEAREST DOLLAR	

Signature Date

Title

Fax # Phone #

For Dept. Use Only

T-36 Clearance Approved

By_____
Department of Labor and Workforce Development

For Dept. Use Only

Amount: _____ Check Number: _____ Cash ___
Received By: _____ Date: _____
Credit Card Confirmation _____
Visa ___ MC____
Project Name_____
DOLWD Project #

Wage & Hour date-stamped copy of this form will serve as temporary receipt.

D:\ie-temp\Temporary Internet Files\OLKF4\noticecompletionpublicworks.doc (6/27/03)

How to expedite the processing of your form:

ERRORS THAT CAUSE REJECTION

No fee included or incorrect amount. If total contract amount is less than $25,000 no filing fee is required. Contract amounts paid to owner/operators with no employees are exempt from the fee. **The maximum total filing fee for any one project is $5,000.00.**

Missing - Value of work performed by primary contractor.

Missing – The name of each **NEW** subcontractor and the amount of the contract OR the name of existing subcontractors and the amount of any **NEW** work not previously reported on the Notice of Work.

Missing – Notice of Completion of Public Works must be signed by an authorized representative.

FILING INSTRUCTIONS

Additional fees are required for any increase in contract value, unless the maximum fee ($5,000) has been paid.

If there is not enough space to list all required information on one form, use additional sheets. Please indicate at the top of each sheet "Page 1 of 2", "Page 2 of 2", etc. No other attachments will be accepted.

A Wage and Hour Administration (WH) date-stamped copy of this form will serve as a temporary receipt, while the acceptance of fees is processed. WH will mail or fax the approved copy of this form to the organization provided on the front of this form. Make a copy for your records. This will serve as your notice that the fees paid have been accepted by WH.

For questions call the nearest WH office:
Juneau: (907) 465-4842 Anchorage: (907) 269-4900 Fairbanks: (907) 451-2886

For more forms, see www.labor.state.ak.us/lss/lssforms.htm

Submit the notice and the appropriate filing fee to:

Alaska Department of Labor and Workforce Development
Wage and Hour Administration
3301 Eagle Street, Ste. 301
Anchorage, AK 99503-4149

If no fee is required, you may fax the notice to (907) 269-4915

D:\ie-temp\Temporary Internet Files\OLKF4\noticecompletionpublicworks.doc (6/27/03)

Alaska Department of Revenue
TAX CLEARANCE REQUEST FORM

Applicant's Name: _____

EIN&SSN: _____

Mailing Address: _____

City/State/Zip Code: _____

I hereby authorize the Alaska Department of Revenue to release to

_____
(Name of Department or Agency)

Departments Statute on tax clearance: _____

whose facsimile number or email address is _____;

confirmation that all taxes, penalties and interest due the Department of Revenue have been paid and that there are no outstanding amounts due.

Signed: _____

Printed Name: _____

Title*: _____

*If tax clearance is being requested on behalf of a corporation/LLC/partnership, must be signed by an officer/member/partner.

Send completed form by email to the Department of Revenue at DOR.tax.accounting@alaska.gov

DEPARTMENT USE ONLY

☐ *The above applicant is current on all taxes, penalties and interest due and is in good standing with the Alaska Department of Revenue.*

☐ *The above applicant is not current on all taxes, penalties and interest due and is not in good standing with the Alaska Department of Revenue.*

Department of Revenue Representative _____ *Date*

TaxClearanceRequestForm (Rev 2/21)

THE STATE of ALASKA
GOVERNOR MICHAEL J. DUNLEAVY

Department of Labor and Workforce Development

Division of Employment and Training Services
Employment Security Tax

P.O. Box 115509
Juneau, AK 99811-5509
Relay Alaska (In state): (800) 770-8973 or 7.1.1
Relay Alaska (out of state): (800) 770-8255
Toll free: (888) 448-2937
Phone: (907) 465-2787
Fax: (907) 465-2374

Tax Clearance Request Form for Contractors

Date of request: _____

Business name of the contractor a Tax Clearance is being requested for: _____

_____

Business address: _____

Business contact phone number: _____

Federal Identification Number: _____

Alaska Employer Account Number: _____

Specific time period a tax clearance is being requested for *(i.e. beginning and ending date of a subcontract agreement)*:

_____

Subcontract project name: _____

_____

Name and address of the person this Tax Clearance is to be returned to: _____

_____

Comments or additional information: _____

_____

For agency use only:

☐ Tax Clearance is granted

☐ Tax Clearance is not granted *(please have employer contact the department)*

☐ No account on file, liability unknown *(please have employer contact the department)*

☐ Employer has stated no employees, Tax Clearance not required.

Agency representative signature: _____ Date: _____

Agency representative title: _____

We are an equal opportunity employer/program. Auxiliary aids and services are available upon request to individuals with disabilities. labor.alaska.gov/estax

Rev. 8/2018

Project Title:_____ **Project Number:**_____

PROJECT CLOSEOUT CHECKLIST	Number Required	Number & Date Delivered
Inspection Documents		
Substantial Completion Inspection Documents	1	
Substantial Completion Punch List	1	
Final Inspection Documents	1	
Final Inspection Punch List	1	
Certificate of Substantial Completion (ASD Form 101)	1	
Contractor Submittals		
As-built drawings to Engineer of Record (Section 01700)	1	
All project record documents (Section 01720)	1	
Maintenance and Operations Manuals – Electronic version – OCR pdf (Section 01730)	1	
Warranty and Special Warranty Manuals (Section 01730)	4	
Certificate of Domestic Water Disinfection (Section 01700)	2	
Warranty of Work (Section 01750)	1	
Certificate of Compliance (Section 01750)	1	
Building Officials Certificate of Mechanical and Electrical Inspection	3	
Building Official's Certificate of Occupancy	3	
Building Official's Certificate of Completion	3	
AHERA Response Action Report (RAR)	1	
AHERA Exclusion Document (Section 00630)	1	
Return school keys to lock shop	1	
Lock Shop Release Form (signed)	1	

Project Title:_____ **Project Number:**_____

PROJECT CLOSEOUT CHECKLIST	Number Required	Number & Date Delivered
Contractor's Affidavit of Payment of Debts and Claims ASD Form102)	1	
Consent of Surety Company to Final Payment (ASD Form 104)	1	
Release on Contract (ASD Form 103)	1	
Consent of Surety to Reduction in/or Partial Release of Retainage (ASD Form 105)	1	
Engineered As-built drawings and special system drawings on reproducible CD's (not zipped)	1	
Engineered As-built drawings and special system drawings on bond/blacklines	2	
Spare Parts deliverables	1	
Copy of Warranty for all items with Extended Warranty	1	
Notice of Completion of Public Works (Section 00630) (Approved DOL Clearance Form)	1	
Dept. of Revenue Tax Clearance Form (Section 00630) (Approved DOR Tax Clearance Form)	1	
Dept. of Labor Tax Clearance Form (Section 00630) (Approved DOL Tax Clearance Form)	1	
Apprenticeship Program - Purchasing release for final payment (projects over $100,000)		
Final Application and Certificate for Payment (ASD Form 100A-C)	1	
Base Access Pass(s) returned to Visitor Control Center		NA

_____ _____

Project Manager Signature Date

END OF SECTION

UTILITY LOCATION REQUIREMENTS

PART 1. - GENERAL

1.01 DESCRIPTION

A. Upon receipt of written notification from any of public agencies or utilities that Contractor has caused damage to any facility, equipment or installation of agency, and Contractor failed to request a utility locate service from said utility at least two (2) normal business days prior to damage, or if locate services was properly requested, that damage was not approximately caused by error in locate service, Owner will withhold from forthcoming or accrued Contract payment, including advances, a sum sufficient to protect agency or utility from loss. Public agencies or utilities that provide notice of facility damage under this paragraph are:

Anchorage Water and Wastewater Utility
Alaska Communications Systems
Alaska Fiber Star
Alaska Native Medical Center
Alaska Railroad Corporation
Alyeska Cable / TelAlaska
Anchorage School District
Aircraft Service International Group
AT&T Alascom
Chugach Electric Association, Inc.
Department of Transportation Street Lights, State of Alaska
Enstar Natural Gas Company
Flint Hills Resources/Williams Alaska Pipeline
GCI Cable
Matanuska Electric Association
Matanuska Telephone Association
Municipality of Anchorage/Department of Public Works
Municipal Light & Power Utility
Tesoro Alaska Inc.

B. Upon receipt of release of claim by notifying utility or upon judgment of a court having jurisdiction in matter and having established that Contractor is liable for a lesser amount or is not liable for damage, Owner will release excess funds to Contractor. Funds withheld pursuant to this provision shall not bear interest. Upon receipt of satisfactory evidence against Contractor in court of competent jurisdiction within sixty (60) days after discovery of damage, Owner shall release funds withheld pursuant to this provision.

1.02 PROTECTION OF UTILITIES

A. Any pipes or other utilities encountered in excavation shall be shored up and cared for by Contractor as to leave them in a proper working condition until such times as Owner determines what shall be done with them.

B. Any utilities mislocated or inadequately located by appropriate utility company which are damaged by Contractor shall not constitute reimbursement or time extensions to Contractor from Owner for repair(s) of work that Contractor performs.

C. Contractor shall coordinate his work to cooperate with original utility service installed.

PART 2. - PRODUCTS (NOT USED)

PART 3. - EXECUTION (NOT USED)

END OF SECTION

HAZARDOUS MATERIALS ASSESSMENT

PART 1 – GENERAL

1.1. NOTIFICATIONS

A. Notification of Potential Hazards: Asbestos, lead and other potentially hazardous materials are present in the building that may impact the work of all trades. Regulated air contaminants, including asbestos and lead, are also present in settled and concealed dust in and on architectural, structural, mechanical and electrical components or systems throughout the building. All trades shall coordinate with other trades and conduct their work to prevent worker exposure or site contamination. Refer to Specification Divisions 0, 1 and 2 for specific information concerning disturbing, removing and disposing of these materials and the installation of new materials or components. This notification is provided in accordance with EPA and OSHA requirements.

B. Notification of Child Occupied Facility: Portions of this building are classified as a Child Occupied Facility in accordance with 40 CFR 745 and lead-based paints may be present on components to be disturbed in those areas. Personnel performing work in these areas must comply with the requirements of 40 CFR 745, including training, work practices and cleaning of the work area. Refer to Specification Divisions 0, 1 and 2 for specific information concerning disturbing, removing and disposing of lead materials and the installation of new materials or components. This notification is provided in accordance with EPA and OSHA requirements.

1.2. SECTION INCLUDES

A. This section contains the Hazardous Materials Assessment for the project. The Hazardous Materials Assessment is provided for information only, does not contain any specific contractual requirements related to the project or require the submittal of any items, and is subject to the limitations contained in the Assessment.

B. This section does not apply to or address requirements related to any specific health, safety, or environmental concerns or conditions which may be present at this site.

1.3. CONTRACT DOCUMENTS AND RELATED REQUIREMENTS

A. Drawings and general provisions of the contract, including general and supplementary conditions and other Division 0, 1, and 2 specifications, apply to the work of this section. The contract documents show or describe the work to be done under the contract including related requirements and conditions impacting the project. Related requirements and conditions include, but are not limited to, applicable codes and regulations, notices and permits, existing site conditions and restrictions on use of the site, security of the site, requirements for partial owner occupancy during the work, coordination with other work and the phasing of the work, among others. In the event the Contractor discovers a conflict in the contract documents and/or requirements, the conflict must be brought to the immediate attention of the Owner for resolution. Whenever there is a conflict or overlap in the requirements, the most stringent shall apply. Any actions taken by the Contractor without authorization from the Owner shall become the sole risk and responsibility of the Contractor. All costs incurred due to such action are also the responsibility of the Contractor.

1.4. RELATED WORK

A. 02 82 33 – Removal and Disposal of Asbestos Containing Materials

B. 02 88 00 – Removal and Disposal of Miscellaneous Hazardous Materials

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

- - - SEE ATTACHED - - -

HAZARDOUS MATERIALS ASSESSMENT

Hazardous Materials Assessment

Anchorage School District, ASD
RFP 2023-619 - College Gate Elementary School Roof Replacement,
College Gate Elementary School,
3101 Sunflower Street,
Anchorage, Alaska 99508



Assessment Date: October 03-04, 2023, May 28-29, 2024, and July 24, 2024
Report Date: September 11, 2024
HTRW, LLC Project No.: 2023-13

HTRW, LLC
HAZARDOUS BUILDING MATERIALS CONSULTING
11471 BUSINESS BLVD., #773442, EAGLE RIVER, AK 99577
(907) 917-3801 · (917) 203-7517 (FAX) · CONTACT@HTRW-LLC.COM

HAZARDOUS MATERIALS ASSESSMENT

1. INTRODUCTION AND EXECUTIVE SUMMARY 1

2. GENERALIZED BUILDING/SITE DESCRIPTIONS 7

3. PROJECT SUMMARY 8

4. INSPECTOR 8

5. DEFINITIONS 8

6. SCOPE OF ASSESSMENT 8

7. ASBESTOS 10
A. Survey Results 10
B. Discussion on Findings 10
C. Regulatory Discussion 14
D. Conclusions and Recommendations 15

8. LEAD 15
A. Survey Results 16
B. Discussion on Findings 16
C. Regulatory Discussion 17
D. Conclusions and Recommendations 19

9. OTHER COMMON HAZARDOUS BUILDING MATERIALS 19
A. Mercury 19
a. Survey Results 19
b. Discussion on Findings 19
c. Regulatory Discussion 20
d. Conclusions and Recommendations 21
B. PCB-Containing Materials 21
a. Survey Results 21
b. Discussion on Findings 21
c. Regulatory Discussion 22
d. Conclusions and Recommendations 22
C. Ozone Depleting Substances 22
a. Survey Results 22
b. Discussion on Findings 23
c. Regulatory Discussion 23
d. Conclusions and Recommendations 23
D. Components with Radioactive Materials 23
a. Survey Results 23
b. Discussion on Findings 23
c. Regulatory Discussion 23
d. Conclusions and Recommendations 24
E. Heat Transfer Fluids 24
a. Survey Results 24
b. Discussion on Findings 24
c. Regulatory Discussion 24
d. Conclusions and Recommendations 24
F. Regulatory References 25

10. OTHER MATERIALS AND CONSIDERATIONS 26
A. Survey Results 26
B. Discussion on Findings 26
C. Regulatory Discussion 27
D. Conclusions and Recommendations 27

11. LIMITATIONS 27
A. Accuracy of Information 27
B. Site Conditions 27
C. Evolving Regulatory Landscape 28

HAZARDOUS MATERIALS ASSESSMENT

APPENDIX A – ASBESTOS

APPENDIX A.1 – TABLE OF ASBESTOS SAMPLES
APPENDIX A.2 – FINAL LABORATORY CERTIFICATE OF ANALYSIS & CHAIN OF CUSTODY
APPENDIX A.3 – LABORATORY ACCREDITATIONS
APPENDIX A.4 – ASBESTOS INSPECTOR CERTIFICATIONS

APPENDIX B - LEAD

APPENDIX B.1 – TABLE OF XRF READINGS
APPENDIX B.2 – LEAD INSPECTOR CERTIFICATIONS

APPENDIX C – OTHER COMMON HAZARDOUS BUILDING MATERIALS (NO SAMPLING OF THESE MATERIALS WAS PERFORMED)

APPENDIX D – DRAWINGS OF ASBESTOS AND LEAD TEST LOCATIONS

APPENDIX E – SUPPLEMENTAL INFORMATION

HAZARDOUS MATERIALS ASSESSMENT

1. Introduction and Executive Summary

Under contract to RIM Architects, LLC, HTRW, LLC performed a hazardous building materials assessment of portions of College Gate Elementary School located at 3101 Sunflower Street in Anchorage, Alaska 99508. The objective of the assessments was to identify ***common hazardous building materials*** that may be affected by the proposed College Gate Elementary School Roof Replacement Project. Mr. Christopher T. Ottosen of HTRW, LLC performed the assessments on October 03-04, 2023, May 28-29, 2024, and July 24, 2024 while the site was occupied.

The following ***common hazardous building materials*** were identified in the building: asbestos-containing materials, lead-containing materials, mercury-containing materials, PCB-containing materials, ozone depleting substances (ODS), heat transfer fluids, and devices with radioactive components.

These ***common hazardous building materials*** are regulated to varying degrees, and in general, require the use of qualified firms using workers who are trained in the safe handling, removal, and disposal of these various materials. The regulations governing the removal of the ***common hazardous building materials*** addressed by this report are intended to ensure the health and safety of persons and the environment. Failure to adhere to the requirements of the governing regulations may result in an uncontrolled release of the materials, potentially exposing persons or the environment to the hazardous effects of the materials. Failure to comply with the regulations may invoke regulatory enforcement action such as fines, citations, and penalties, or may lead to litigation from those parties potentially exposed to the hazards.

A summary of the ***common hazardous building materials*** is presented in the following tables. Refer to discussions in the remainder of this report and information contained within the appendices of this report for additional detailed information regarding these materials.

ASBESTOS			
MATERIAL DESCRIPTION	**EPA CATEGORY**	**ASSUMED/ CONFIRMED**	
		1969	**1995**
Debris and remnants from the former built-up roof materials	1	C	None
Intact and concealed multi-ply built-up roof materials	1	C	None
Asphaltic roof mastics and tars	1	C	A
Flange gaskets	1	A	A
Valve packings	1	A	A
9” x 9” vinyl asbestos tile	1	C	None
12” x 12” vinyl asbestos tile	1	A	-
Grey roof sealant/putty at metal roof deck panels	2	C	None
Joint compound on gypsum board systems (walls, ceilings, soffits, etc.)	2	C	None
Mastic between layers of gypsum board	2	A	-
12” x 12” glued-on ceiling tiles	2	C	None
Materials used to adhere “gypsum studs” to sound deadening board or other materials	2	C	None
Dark brown mastic used to adhere lay-in ceiling grid perimeter “L” channels to substrates	2	C	None

HAZARDOUS MATERIALS ASSESSMENT

ASBESTOS			
MATERIAL DESCRIPTION	EPA CATEGORY	ASSUMED/ CONFIRMED	
		1969	1995
Mastics, sealants, and putties used on various HVAC system components	2	A	None
Cement asbestos board wall panels	2	C	None
Cement asbestos board wainscots	2	C	None
Cement asbestos board infill panels at exterior windows	2	C	None
Cement asbestos board exterior soffit and fascia panels	2	C	None
Black flooring mastic	2	C	-
Tarry lining on fan housings inside of air handling equipment	2	C	-
Black undercoating on the bottom of stainless steel sinks	2	C	-
Other colors of undercoatings on the bottom of stainless steel sinks	2	A	A
High temperature wiring insulation inside of older incandescent light fixtures	2	C	None
Tarry lining of clock-speaker box housings	2	A	A
Tarry dampproofing on below grade foundation walls	2	A	A
Sheet vinyl	RACM	A	-
“Hard fitting” insulation on pipe fittings, valves, hangars, roof drain bowls, etc.	RACM	C	None
Heat shields in older incandescent light fixtures	RACM	C	None
Insulating materials inside of doors	RACM	C	A
Gaskets, sealants, and insulating materials inside of the boilers	V	A	A
Hard brittle/crispy brown-orange “puck” mastic used to adhere smooth-faced hardwood paneling to underlying rigid green foam insulation	≤1%	C	None
Hard brittle/crispy dark grey “puck” mastic used to adhere rigid green foam insulation to underlying precast concrete wall panel substrate	≤1%	C	None

Notes to Asbestos-Containing Materials Table:

- Materials labeled with a "C" designation are materials which have been confirmed to contain asbestos.
- Materials labeled with an "A" designation are materials which are assumed to contain asbestos.
- Materials labeled with an "NOB" designation are materials which are classified as a "Non-Friable Organically Bound Material" which were sampled and did not contain asbestos or contained ≤1% asbestos by PLM that are assumed to contain asbestos in greater than 1% if analyzed by TEM NOB.
- Materials labeled as ≤1% contained asbestos at concentrations of less than or equal to one percent.
- Materials labeled with an "NAD" designation are materials which were sufficiently sampled and found not to contain asbestos.
- Materials labeled with a "None" designation are materials which were not observed and not believed to be present.
- Materials labeled with a "-" means there was not enough information to determine if the material was present in the individual building, but it does not mean that the material is not present or that the material does not contain asbestos.
- Where EPA Category is labeled as "V", the materials are typically part of an assembly and may have more than one EPA Category material.

HAZARDOUS MATERIALS ASSESSMENT

LEAD			
MATERIAL DESCRIPTION	**EPA CATEGORY**	**ASSUMED/ CONFIRMED**	
		1969	**1995**
Lead-containing paints	Unclassified*	C	C
Paints classified as “lead-based” paint by the EPA	Unclassified*	C	-
Metallic lead in solder on copper piping and stained glass windows	RCRA exempt scrap metal*	C	A
Metallic poured lead sealants in bell and spigot pipe connections	RCRA exempt scrap metal*	C	A
Metallic lead in VTR flashings	RCRA exempt scrap metal*	None	None
Metallic lead inside of roof drain bowls at clamping rings	RCRA exempt scrap metal*	None	None
Metallic sheet lead	RCRA exempt scrap metal*	-	-
Lead-acid batteries	Universal waste battery	A	A
Glazings of ceramic/porcelain wall tiles	Unclassified*	A	A
Glazings of ceramic/porcelain plumbing fixtures	Unclassified*	A	A
“Formica” laminate panels on cabinetry and countertops	Unclassified*	A	A
Plastics and vinyl products	Unclassified*	C	C

Notes to Lead-Containing Materials Table:

- Materials labeled with a "C" designation are materials which have been confirmed to contain lead.
- Materials labeled with an "A" designation are materials which are assumed to contain lead.
- Materials labeled with a "None" designation are materials which were not observed and not believed to be present.
- Materials labeled with a "-" means there was not enough information to determine if the material was present in the individual building, but it does not mean that the material is not present or that the material does not contain lead.
- Materials labeled with “Unclassified*" means the material requires additional testing to characterize the materials as a non-hazardous lead-containing waste or a RCRA hazardous waste for exhibiting the toxicity characteristic for lead.

OTHER COMMON HAZARDOUS BUILDING MATERIALS			
MATERIAL DESCRIPTION	**EPA CATEGORY**	**ASSUMED/ CONFIRMED**	
		1969	**1995**
Universal waste batteries other than lead-acid batteries	Universal Waste	A	A
Mercury-containing lamps, fluorescent	Universal Waste	C	C
Mercury-containing lamps, high intensity discharge	Universal Waste	C	C
Mercury-containing lamps, neon	Universal Waste	-	-
Mercury-containing equipment, thermostats	Universal Waste	A	A

HAZARDOUS MATERIALS ASSESSMENT

OTHER COMMON HAZARDOUS BUILDING MATERIALS			
MATERIAL DESCRIPTION	**EPA CATEGORY**	**ASSUMED/ CONFIRMED**	
		1969	**1995**
Mercury-containing equipment, HVAC system control switches	Universal Waste	A	A
Poured polyurethane flooring classified as a hazardous waste for mercury	RCRA Hazardous Waste	A	C
PCB-containing light ballasts	TSCA PCB Bulk Product Waste and/or TSCA PCB Equipment	C	-
Contamination from leaking PCB-containing light ballasts	TSCA PCB Contaminated Electrical Equipment	A	-
Any material or product which contains greater than 1 mg/Kg of total PCBs	Alaska DEC Regulated PCB Waste	A	-
Any manufactured article, other than a PCB Container, that contains PCBs and whose surface(s) has been in direct contact with PCBs. "PCB Article" includes capacitors, transformers, electric motors, pumps, pipes and any other manufactured item: (1) which is formed to a specific shape or design during manufacture, (2) which has end use function(s) dependent in whole or in part upon its shape or design during end use, and (3) which has either no change of chemical composition during its end use or only those changes of composition which have no commercial purpose separate from that of the PCB Article	TSCA PCB Article	-	-
Any package, can, bottle, bag, barrel, drum, tank, or other device used to contain PCB Articles or PCB Equipment, and whose surface(s) has not been in direct contact with PCBs	TSCA PCB Article Container	-	-
Any package, can, bottle, bag, barrel, drum, tank, or other device that contains PCBs or PCB Articles and whose surface(s) has been in direct contact with PCBs	TSCA PCB Container	-	-
A non-liquid material containing PCBs at concentrations ≥50 ppm but <500 ppm; a liquid material containing PCBs at concentrations ≥50 ppm but <500 ppm or where insufficient liquid material is available for analysis, a non-porous surface having a surface concentration >10 µg/100 cm2 but <100 µg/100 cm2, measured by a standard wipe test as defined in § 761.123.	TSCA PCB-Contaminated	-	-
Any electrical equipment including, but not limited to, transformers (including those used in railway locomotives and self-propelled cars), capacitors, circuit breakers, reclosers, voltage regulators, switches (including sectionalizers and motor starters), electromagnets, and cable, that contains PCBs at concentrations of ≥50 ppm and <500 ppm in the contaminating fluid. In the absence of liquids, electrical equipment is PCB-Contaminated if it has PCBs at >10 µg/100 cm2 and <100 µg/100 cm2 as measured by a standard wipe test (as defined in § 761.123) of a non-porous surface	TSCA PCB-Contaminated Electrical Equipment	-	-
Any manufactured item, other than a PCB Container or a PCB Article Container, which contains a PCB Article or other PCB Equipment, and includes microwave ovens, electronic equipment, and fluorescent light ballasts and fixtures	TSCA PCB Equipment	-	-

HAZARDOUS MATERIALS ASSESSMENT

OTHER COMMON HAZARDOUS BUILDING MATERIALS			
MATERIAL DESCRIPTION	EPA CATEGORY	ASSUMED/ CONFIRMED	
		1969	1995
PCB waste that is generated by residents on the premises of a temporary or permanent residence for individuals (including individually owned or rented units of a multi-unit construction), and that is composed primarily of materials found in wastes generated by consumers in their homes. PCB household waste includes unwanted or discarded non-commercial vehicles (prior to shredding), household items, and appliances or appliance parts and wastes generated on the premises of a residence for individuals as a result of routine household maintenance by or on behalf of the resident. Bulk or commingled liquid PCB wastes at concentrations of ≥50 ppm, demolition and renovation wastes, and industrial or heavy duty equipment with PCBs are not household wastes	TSCA PCB Household Waste	-	-
Any PCB Article, PCB Article Container, PCB Container, PCB Equipment, or anything that deliberately or unintentionally contains or has as a part of it any PCB or PCBs	TSCA PCB Item	-	-
PCBs regulated for disposal under subpart D of 40 CFR 761 that also contain source, special nuclear, or byproduct material subject to regulation under the Atomic Energy Act of 1954, as amended, or naturally-occurring or accelerator-produced radioactive material	TSCA PCB/radioactive waste	-	-
waste containing PCBs as a result of a spill, release, or other unauthorized disposal, at the following concentrations: Materials disposed of prior to April 18, 1978, that are currently at concentrations ≥50 ppm PCBs, regardless of the concentration of the original spill; materials which are currently at any volume or concentration where the original source was ≥500 ppm PCBs beginning on April 18, 1978, or ≥50 ppm PCBs beginning on July 2, 1979; and materials which are currently at any concentration if the PCBs are spilled or released from a source not authorized for use under this part. PCB remediation waste means soil, rags, and other debris generated as a result of any PCB spill cleanup, including, but not limited to: (1) Environmental media containing PCBs, such as soil and gravel; dredged materials, such as sediments, settled sediment fines, and aqueous decantate from sediment. (2) Sewage sludge containing <50 ppm PCBs and not in use according to § 761.20(a)(4); PCB sewage sludge; commercial or industrial sludge contaminated as the result of a spill of PCBs including sludges located in or removed from any pollution control device; aqueous decantate from an industrial sludge. (3) Buildings and other man-made structures (such as concrete floors, wood floors, or walls contaminated from a leaking PCB or PCB-Contaminated Transformer), porous surfaces, and non-porous surfaces	TSCA PCB Remediation Waste	-	-
Domestic septage as defined in 40 CFR 503.9 inside of the septic tanks	TSCA PCB Sewage Sludge	-	-
All electrical transformers at the building, including those in loose electrical equipment, with less than 3 pounds of fluid, circuit breakers, reclosers, oil-filled cable, and rectifiers	Alaska DEC Regulated PCB Waste	-	-

HAZARDOUS MATERIALS ASSESSMENT

OTHER COMMON HAZARDOUS BUILDING MATERIALS			
MATERIAL DESCRIPTION	EPA CATEGORY	ASSUMED/ CONFIRMED	
		1969	1995
All electrical equipment at the building that has capacitors of any size or age, including those in loose electrical equipment	TSCA PCB Capacitor	-	-
PCB-containing equipment	TSCA PCB waste, category varies	-	-
Ozone Depleting Substances (ODS), consumer-grade refrigerators	CAA Class I or Class II Controlled Substance	A	A
Ozone Depleting Substances (ODS), consumer-grade freezers	CAA Class I or Class II Controlled Substance	A	A
Ozone Depleting Substances (ODS), consumer-grade air conditioning equipment	CAA Class I or Class II Controlled Substance	A	A
Ozone Depleting Substances (ODS), commercial-grade refrigerators	CAA Class I or Class II Controlled Substance	A	A
Ozone Depleting Substances (ODS), commercial-grade freezers	CAA Class I or Class II Controlled Substance	A	A
Ozone Depleting Substances (ODS), commercial-grade air conditioning systems	CAA Class I or Class II Controlled Substance	A	A
Ozone Depleting Substances (ODS), drinking fountains	CAA Class I or Class II Controlled Substance	A	A
Ozone Depleting Substances (ODS), Halons	CAA Class I or Class II Controlled Substance	-	-
Ozone Depleting Substances (ODS), Other	CAA Class I or Class II Controlled Substance	-	-
Radioactive materials in self-illuminating exit signs	NRC Generally Licensed Waste	A	A
Radioactive materials in smoke detectors	NRC Generally Licensed Waste	A	A
Heat transfer fluids, glycol-based	Unclassified*	C	C
Heat transfer fluids, water-based	Unclassified*	-	-
Heat transfer fluids, unknown system contents	Unclassified*	A	A
Specialty paint products used in parking lot striping and similar features that may contain one or more of the following potentially hazardous constituents: lead, chromium, hexavalent chromium, silica, cadmium	Unclassified*	A	A

Notes to Other Common Hazardous Building Materials Table:

- Materials labeled with a "C" designation are materials which have been confirmed to be present.
- Materials labeled with an "A" designation are materials which are assumed to be present.
- Materials labeled with a "None" designation are materials which were not observed and not believed to be present.
- Materials labeled with a "-" means there was not enough information to determine if the material was present in the individual building, but it does not mean that the material is not present or that the material does not contain other potentially hazardous materials or components.
- Materials labeled with “Unclassified*" means the material requires additional testing to characterize the materials.

HAZARDOUS MATERIALS ASSESSMENT

2. Generalized Building/Site Descriptions

College Gate Elementary School was originally constructed in 1969. In 1995, portions of the original building were renovated and additions were constructed on the north and southeast sides of the original building.

The building has a concrete slab on grade foundation with a mixture of pre-cast concrete wall panels, concrete block, and various structural steel members supporting the corrugated metal roof deck. The original 1969 construction gym was an exception and instead had a wood fiber ("Tectum") roof deck. Siding varied between exposed aggregate finish on some of the pre-cast concrete wall panels, EIFS, T1-11 wood siding, and exposed concrete block.

Based on documentation of the existing roofs provided by the ASD, each roof area, or "section", was assigned a letter code which defines each distinct roof area. These letter codes have been revised over the years, and references to roofs throughout this project are based on the conventions provided by the ASD for use with this project. The letter codes include Roofs A, B, C, D, E, F, G, H, I, J, K, L, and M.

As part of the hazardous building materials assessment, the roofs were alternatively defined using a combination of the letter codes and the available as-built documentation, which was necessary for the purposes of defining homogeneous areas of materials across each roof area. The roofs were split into 3 separate homogeneous areas, and each roof area was sampled separately. Each of the roof types had variations in the number and types of layers, and therefore, they are not described separately. Instead, the layers observed in each of the roof cores are included below. As noted previously, all roofs had corrugated metal roof decks with the exception of the original 1969 construction gym which had a wood fiber roof deck, and therefore, the roof decks are not described in the below table. Similarly, all roofs had cementitious roofing pavers across the entire surfaces of the roofs and are not described in the table below.

ROOF CORE NO.	ROOF TYPE	ROOF CODE	LAYER 1	LAYER 2	LAYER 3	LAYER 4	LAYER 5	LAYER 6	LAYER 7	LAYER 8	LAYER 9	LAYER 10
RC01	1	D	Filter Fabric	XPS	XPS	EPDM	SLIP SHEET	EPS	DENS	TYVEK	HOT MOP	BURD
RC02	1	C	Filter Fabric	XPS	XPS	EPDM	EPS	DENS	TYVEK	HOT MOP	VB	BURD
RC03	1	B	Filter Fabric	XPS	XPS	EPDM	SLIP SHEET	EPS	TYVEK	DENS	TYVEK	HOT MOP / BURD
RC04	3	A	Plastic Mesh	XPS	XPS	XPS	EPDM	DENS	TYVEK	-	-	-
RC05	1	E	Filter Fabric	XPS	XPS	POLY	EPDM	SLIP SHEET	EPS	DENS	TYVEK	HOT MOP / VB / BURD
RC06	1	E	Filter Fabric	XPS	XPS	EPDM	EPS	DENS	TYVEK	HOT MOP	VB	BURD
RC07	3	A	Filter Fabric	XPS	XPS	XPS	EPDM	EPS	DENS	TYVEK	-	-
RC08	1	F	Filter Fabric	XPS	XPS	EPDM	SLIP SHEET	EPS	DENS	TYVEK	HOT MOP	VB / BURD
RC09	1	C	Filter Fabric	XPS	XPS	EPDM	SLIP SHEET	EPS	DENS	TYVEK	HOT MOP	BURD
RC10	3	J	Plastic Mesh	XPS	XPS	XPS	EPDM	DENS	EPS	TYVEK	-	-
RC11	3	K	Plastic Mesh	XPS	XPS	XPS	EPDM	DENS	EPS	TYVEK	-	-

ROOF CORE NO.	ROOF TYPE	ROOF CODE	LAYER 1	LAYER 2	LAYER 3	LAYER 4	LAYER 5	LAYER 6	LAYER 7	LAYER 8	LAYER 9	LAYER 10
RC12	2	G	Filter Fabric	XPS	XPS	EPDM	SLIP SHEET	EPS	DENS	OSB	FG	HM / BURD
RC13	2	G	Filter Fabric	XPS	XPS	EPDM	SLIP SHEET	EPS	DENS	OSB	FG	HM / BURD
RC14	1	M	Filter Fabric	XPS	XPS	EPDM	EPS	TYVEK	DENS	TYVEK	-	-
RC15	3	I	Plastic Mesh	XPS	XPS	XPS	EPDM	DENS	EPS	TYVEK	-	-

BURD = Built-Up Roof Debris **DENS = "DensDeck" Roof Sheathing** **EPDM = Ethylene Propylene Diene Monomer**
EPS = Expanded Polystyrene **FG = Fiberglass** **OSB = Oriented Strand Board**
POLY = Polyethylene Sheeting **RI = Rigid Insulation** **VB = Vapor Barrier**
XPS = Extruded Polystyrene

3. Project Summary

The project's main goal is to replace all existing roof assemblies at the building. Refer to descriptions and narratives of other disciplines for detailed information on the overall scope of work for the project.

4. Inspector

Mr. Christopher T. Ottosen of HTRW, LLC performed the assessment and holds the following certifications: EPA-Certified AHERA Building Inspector, Management Planner, Project Designer, Asbestos Abatement Worker and Contractor/Supervisor, and EPA-Certified Risk Assessor. Mr. Ottosen is an Alaska Asbestos Abatement Certificate of Fitness Holder and has additional training from McCoy and Associates on the RCRA Hazardous Waste Regulations; Confined Space Entry Training; OSHA 10-Hour Training; and Radiation Safety Training. HTRW, LLC is an EPA-Certified Lead-Safe Firm. Documentation of these various certifications and training experience is available on request to HTRW, LLC.

5. Definitions

Auxiliary work: is intended to include all work that is not defined as a ***major element*** by this report. An example of ***auxiliary work*** includes work such as routing of new mechanical or electrical systems to areas outside of the ***main work area***(s).

Common hazardous building materials: for the purposes of this report is intended to include: asbestos-containing materials, lead-containing materials, mercury-containing materials, PCB-containing materials, ozone depleting substances (ODS), heat transfer fluids, and materials with radioactive components.

Main work area: is intended to include area(s) which have defined boundaries where the majority of work is located.

Major element: is intended to include the elements of work which are located within the ***main work area***(s), whose scope is not subject to variations in means or methods, and can generally be identified solely by graphical representation or notation on the contract drawings.

6. Scope of Assessment

The hazardous materials assessment performed by HTRW, LLC did not include inspection of the entire site or identification of all ***common hazardous building materials*** which may be present at the site, including certain ***common hazardous building materials*** not scheduled for disturbance which are located within the assessment

HAZARDOUS MATERIALS ASSESSMENT

boundaries. The assessment was focused on the identification of ***common hazardous building materials*** located within the ***main work area***(s) which were scheduled for disturbance by the proposed College Gate Elementary School Roof Replacement Project and as agreed upon with our client. The assessment did include identification of ***common hazardous building materials*** located both inside and outside of the main work area boundaries that could potentially be disturbed by the scope of work, or for those materials which were likely to be contacted during the work based on the inspector's professional judgement. The information contained in this report is based mainly on the historical drawing information described below, observations made by the inspector at the site, the results of the limited sampling conducted, experience in other similar buildings, and from experiences with past projects of similar scope.

Prior to and after the assessment, HTRW, LLC reviewed available documentation for the site which aided in the development of a sampling and inspection strategy, as well as in the preparation of this report. HTRW, LLC reviewed the following information which was made available electronically:

- Historical drawing information:
  - 1969 College Gate Elementary School original construction drawings with various partial shop drawings.
  - 1973 Landscaping Improvements.
  - 1981 Multi-purpose Room Floor.
  - 1986 Interior Painting Elevations, sheet A-7.
  - 1988 Mechanical Upgrades, sheet 3 of 5.
  - 1988 Site Improvements, sheet C-4.
  - 1990 Fire Alarm Device Layout.
  - 1990 Fire Alarm Riser Diagram.
  - 1992 Boiler Replacement.
  - 1995 Addition & Remodel, various versions of the construction drawings set (i.e. bid drawings, as-built drawings, record drawings, etc.) in .pdf and .dwg formats along with various shop drawings from the construction.
  - 1996 Floor Plan by Omni Computer Center, Inc.
  - 1997 Site Plan by Chugach Computer Technologies.
  - 1997 Roof Replacement, various versions of the construction drawings set in .pdf and .dwg formats with a shop drawing.
  - 1999 Ceiling Tile Replacement, sheets A-1 and ME1.
  - 2004 Fire Alarm Replacement with shop drawings.
  - 2005 Mechanical Upgrades.
  - 2010 Lighting Energy Conservation Measures (ECM's) and Power Upgrades, ITB# 10-009-CF, various versions of the construction drawings set in .pdf format with the project specifications.
  - 2010 Administration Remodel drawings labeled as "Not Built".
  - 2011 Flooring Renewal.
  - 2014 HVAC Upgrades.
  - 2014 Entry Access Project.
  - 2022 Rubber Gym Floor Replacement.
  - 2022 Multi-site Secure Vestibule Upgrades: Group 4, North.
- Existing hazardous materials-related information:
  - Hazards abatement drawings from various projects above.
  - A January 18, 2009 report by EHS-Alaska, Inc. for the ECM project.
  - A scan of the College Gate Elementary School AHERA binder with a date of July 08, 2011.
  - A March 04, 2022 report by EHS-Alaska, Inc. for the Rubber Gym Floor Replacement Group 1 project.

HAZARDOUS MATERIALS ASSESSMENT

7. Asbestos

HTRW, LLC collected bulk samples of building materials at the site which were analyzed by Polarized Light Microscopy (PLM) using protocols defined in 40 CFR Appendix E to Subpart E of Part 763, interim method for the Determination of Asbestos in Bulk Insulation Samples; the United States Environmental Protection Agency (USEPA) Method 600, R93-116; and NYSDOH ELAP 198.1 as needed. PLM analysis is the "standard" analysis that is required by most agencies governing asbestos-related work, however, it is limited in its ability to identify smaller asbestos fibers due to the low magnification used by the analytical method, as well as for asbestos fibers which may be obscured by interfering matrices. A secondary analysis that may be performed at the discretion of the inspector to help aid in the analysis of these types of samples is called Transmission Electron Microscopy for Non-friable, Organically Bound (TEM-NOB) materials which uses protocols defined in ELAP Section 198.4. Several other analytical methods exist to determine the presence of asbestos in bulk samples of building materials, and those techniques may be used at the discretion of the building inspector.

The PLM and TEM-NOB samples were analyzed by International Asbestos Testing Laboratories (iATL) located at 9000 Commerce Parkway Suite B, Mt. Laurel, New Jersey 08054. This laboratory was accredited at the time of analysis by the National Institute of Standards and Technology (NIST) through the National Voluntary Laboratory Accreditation Program.

Refer to Appendix A and Appendix D for the following asbestos-related documentation:

Appendix A.1 - Table of Asbestos Samples

Appendix A.2 - Final Laboratory Certificate of Analysis & Chain of Custody

Appendix A.3 - Laboratory Accreditations

Appendix A.4 - Asbestos Inspector Certifications

Appendix D - Drawings of Asbestos and Lead Test Locations

A. Survey Results

Refer to the tables at the beginning of this report for a summary of the materials which were confirmed or assumed to contain asbestos by this or previous assessments, Appendix A.1 for a listing of samples collected for this project, and Appendix D for drawings of sample locations.

B. Discussion on Findings

Category I Nonfriable Asbestos-Containing Materials

The EPA defines Category I nonfriable asbestos-containing material as:

Asbestos-containing packings, gaskets, resilient floor covering, and asphalt roofing products containing more than 1 percent asbestos as determined using the method specified in appendix E, subpart E, 40 CFR part 763, section 1, Polarized Light Microscopy.

A summary of the types of Category I nonfriable asbestos-containing material identified in the buildings are shown in Appendix A.1 - Table of Asbestos Samples. The Category I nonfriable asbestos-containing materials were typically in good condition with isolated areas of "normal wear-and-tear" type damage unless noted otherwise below.

A discussion on the Category I nonfriable asbestos-containing materials known or assumed to be present at the site include:

- Debris and remnants from the former built-up roof materials
  - Debris from the original 1969 construction built-up roof assembly and associated materials were found in most cores during the October 2023 assessment, and the original built-up roof was previously confirmed to

contain asbestos. Where sampled, the black "hot-mop" tars and "Kraft" paper vapor barrier materials did not contain asbestos. The debris will be entirely removed from the roof level by this project.
    - Debris on the interior of the building was typically limited to areas below existing roof penetrations and at the edges of the 1969 era where additions were constructed in 1995. The debris will be removed only as encountered during the interior work.
- Intact and concealed multi-ply built-up roof materials
    - Although not directly observed during the October 2023 assessment, this report assumes that there are small, isolated areas where the original built-up roof materials remain in an intact condition. Based on past experience in other similar buildings, intact areas of roofing materials are commonly left in place in hard to clean or reach areas, where the materials did not need to be removed, or in locations where the materials had previously been covered by other components, such as at overlaps in roof decks or where mechanical equipment "sandwiched" the materials in place. These intact and concealed materials will be removed by this project if encountered and accessible.
- Asphaltic roof mastics and tars
    - Various types of asphaltic roof mastics and tars were observed during the October 2023 assessment, and some of these materials were confirmed to contain asbestos. These materials were typically found as remnant materials on mechanical curbs, hoods, fans, flues, etc., but may be found in other locations as is common on most roofs. Other common locations these types of materials have frequently observed on at other facilities include splatters on the roofing panels, at electrical penetrations, at other miscellaneous penetrations, such as thru bolts for roof ladders, roof hatches, among others. These materials will be removed as necessary to accommodate the work.
- Flange gaskets and Valve packings
    - Flange gaskets and valve packing on piping systems are assumed to contain asbestos. These materials typically cannot be sampled without disassembling components and typically vary widely in their composition in any given building based on which applications the materials are used with or when they were installed. Therefore, all flange gaskets and valve packing materials in this building are assumed to contain asbestos. These materials are not currently anticipated to be disturbed by this project.
- Other Category I materials previously identified at the facility that are not anticipated to be disturbed by this project and are not discussed in detail include:
    - 9" x 9" vinyl asbestos tile
    - 12" x 12" vinyl asbestos tile

Category II Nonfriable Asbestos-Containing Materials

The EPA defines Category II nonfriable asbestos-containing material as:

Any material, excluding Category I nonfriable ACM, containing more than 1 percent asbestos as determined using the methods specified in appendix E, subpart E, 40 CFR part 763, section 1, Polarized Light Microscopy that, when dry, cannot be crumbled, pulverized, or reduced to powder by hand pressure.

A summary of the types of Category II nonfriable asbestos-containing material identified in the buildings are shown in Appendix A.1 - Table of Asbestos Samples. The Category II nonfriable asbestos-containing materials were typically in good condition with isolated areas of "normal wear-and-tear" type damage unless noted otherwise below.

A discussion on the Category II nonfriable asbestos-containing materials known or assumed to be present at the site include:

- Grey roof sealant/putty at metal roof deck panels
    - Previous reports described an asbestos-containing grey roof sealant/putty that was used on the 1969 construction roof deck. This material was confirmed to be present throughout the 1969 era on the seams of the corrugated metal roof deck during the May 2024 assessment. Debris from this material was also observed on top of lay-in ceiling tiles in some locations, as well as other miscellaneous above-ceiling

HAZARDOUS MATERIALS ASSESSMENT

components. One roofing panel was found to have the same material adhered to the surface of it, and it is assumed that isolated additional quantities may be encountered during the removal of the existing roofing materials. This material will require removal in Book Room 44 to accommodate the new roof hatch and may require additional disturbance to accommodate the overall scope of work. On the interior of the building, debris is likely to be encountered, and it is assumed that any debris encountered will be capable of being removed intact without disturbing the matrix of the material and disposed of as asbestos waste. Similarly, where encountered on existing roofing components at the roof level, it is anticipated that the material can be removed intact and disposed of as asbestos waste.

- Joint compound on gypsum board systems (walls, ceilings, soffits, etc.), associated mastics
  - Joint compound on original 1969 construction gypsum board systems (walls, ceilings, soffits, etc.) have previously been confirmed to contain asbestos. The AHERA documentation shows that a mastic may have been used in between layers of gypsum board in some locations of the 1969 era, and it is assumed that the mastic, if present, contains asbestos. The joint compound and mastic are anticipated to require miscellaneous small disturbances to accommodate the overall scope of work. In Book Room 44, these materials will be removed in their entirety from Book Room 44 to accommodate the new roof hatch and ceiling replacement.
- 12” x 12” glued-on ceiling tiles
  - 12” x 12” glued-on ceiling tiles in Rooms 24, 34, and 44 were previously confirmed to contain asbestos. The mastic associated with these glued-on ceiling tiles did not contain asbestos, however, the mastics do not appear to have been analyzed by TEM NOB, which is recommended. This material will be removed in its entirety from Book Room 44 to accommodate the new roof hatch and ceiling replacement but is not anticipated to require disturbance in other areas of the building.
- Materials used to adhere “gypsum studs” to sound deadening board or other materials
  - Based on recent findings in other ASD facilities of similar age, construction details and observed construction, and designer of record, it is assumed that one or more asbestos-containing materials were used to adhere “gypsum studs” to sound deadening board and/or other materials. At least one of the mastics used in this application was confirmed to contain asbestos during the July 24, 2024 sampling event, and that material was an off-white to cream-colored mastic which was found between the internal gypsum board stud and the sound deadening board. Walls with “gypsum studs” are shown on the 1969 as-built drawings to be present throughout most of the original interior 1969 partitions of the school which had vinyl-covered gypsum wall board. Based on the current design and anticipated means and methods to complete the work, the material does not appear to require disturbance.
- Dark brown mastic used to adhere lay-in ceiling grid perimeter “L” channels to substrates
  - A dark brown mastic was used to adhere lay-in ceiling grid perimeter “L” channels to substrates, and that mastic was confirmed to contain asbestos in the 1969 era by the May 2024 assessment. This material is not anticipated to be disturbed by this project.
- Mastics, sealants, and putties used on various HVAC system components
  - Mastics, sealants, and putties used on various HVAC system components throughout the 1969 era are assumed to contain asbestos. Older ductwork observed during the May 2024 assessments generally did not appear to have used these types of materials, but not all ductwork and materials were accessible for assessment and sampling. Therefore, this report assumes that materials such as these were likely to have been sporadically used on the original 1969 era ductwork and other various HVAC system components. Newer ductwork found in the 1969 era generally did use various mastics and sealants on the seams of the ductwork, and where tested, these materials did not contain asbestos.
- Cement asbestos board exterior soffit and fascia panels
  - Cement asbestos board was used on the exterior fascia and soffit panels of the original 1969 era exterior perimeters of the building. Portions of these cement asbestos panels were previously removed to

HAZARDOUS MATERIALS ASSESSMENT

accommodate the 1995 additions, however, the panels were still present at all other locations observed. Select panels will be replaced by this project.

- Other Category II materials previously identified at the facility that are not anticipated to be disturbed by this project and are not discussed in detail include:
  - Cement asbestos board wall panels
  - Cement asbestos board wainscots
  - Cement asbestos board infill panels at exterior windows
  - Black flooring mastic
  - Tarry lining on fan housings inside of air handling equipment
  - Black undercoating on the bottom of stainless steel sinks
  - Other colors of undercoatings on the bottom of stainless steel sinks
  - High temperature wiring insulation inside of older incandescent light fixtures
  - Tarry lining of clock-speaker box housings
  - Tarry dampproofing on below grade foundation walls

Regulated Asbestos-Containing Materials

The EPA defines regulated asbestos-containing materials (RACM) as:

Friable asbestos material; Category I nonfriable ACM that has become friable; Category I nonfriable ACM that will be or has been subjected to sanding, grinding, cutting, or abrading; or Category II nonfriable ACM that has a high probability of becoming or has become crumbled, pulverized, or reduced to powder by the forces expected to act on the material in the course of demolition or renovation operations regulated by this subpart.

A summary of the types of RACM identified in the buildings are shown in Appendix A.1 - Table of Asbestos Samples. The RACM materials were typically in good condition with isolated areas of “normal wear-and-tear” type damage unless noted otherwise below.

A discussion on the RACM materials known or assumed to be present at the site include:

- “Hard fitting” insulation on pipe fittings, valves, hangars, roof drain bowls, etc.
  - Piping from the original 1969 construction has previously been confirmed to have asbestos-containing “hard fitting” insulation at pipe fittings, valves, hangars, roof drain bowls, and other various locations on all types of piping systems which were insulated. This insulation was noted as being present throughout the 1969 era on heating pipes, but otherwise, the material appeared to have been removed from rain leader piping, VTR piping, and domestic water piping. However, small runs of rain leader piping in the MPR and adjacent Boiler Room were noted as having the older asbestos-containing “hard fitting” insulation. Based on the anticipated point of connection of the replacement rain leader piping, the material does not appear to require disturbance. No “hard fitting” insulation, or remnants of, were observed on any roof drain bowls. In addition to the “hard fitting” insulation discussed above, this report assumes that “hard fitting” insulation is still present inside of inaccessible spaces on all piping systems which were originally insulated, and these materials are not anticipated to be encountered during the scope of work for this project.
- Other RACM materials previously identified at the facility that are not anticipated to be disturbed by this project and are not discussed in detail include:
  - Sheet vinyl
  - Heat shields in older incandescent light fixtures
  - Insulating materials inside of doors
  - Gaskets, sealants, and insulating materials inside of the boilers

HAZARDOUS MATERIALS ASSESSMENT

Materials Containing Less Than or Equal to One Percent Asbestos

Materials which contain less than or equal to 1% asbestos are not classified as an asbestos-containing material by the EPA or OSHA, and these materials are not regulated for disposal by the EPA. However, OSHA regulations under 29 CFR 1926.1101 still apply to workers involved in the disturbance of materials containing ≤1% asbestos. Materials at the site which were found to contain ≤1% asbestos include:

- Hard brittle/crispy brown-orange "puck" mastic used to adhere smooth-faced hardwood paneling to underlying rigid green foam insulation
  - A hard brittle/crispy brown-orange "puck" mastic was used to adhere smooth-faced hardwood paneling to underlying rigid green foam insulation in the Boiler Room, and that mastic was confirmed to contain less than one percent asbestos by both PLM and TEM NOB. The smooth-faced hardwood paneling was not noted in other areas of the building but may be present in areas not observed during the May 2024 assessment. Similarly, this type of mastic may have been used with other types of wall assemblies at the school, such as in between layers of gypsum board and/or between gypsum board and sound deadening boards, among other possible locations. Numerous colors and consistencies of "puck" mastic have been identified at this building for numerous applications, and some of these mastics may also contain asbestos. This material is not anticipated to require disturbance by this project.
- Hard brittle/crispy dark grey "puck" mastic used to adhere rigid green foam insulation to underlying precast concrete wall panel substrate
  - A hard brittle/crispy dark grey "puck" mastic was used to adhere rigid green foam insulation to underlying precast concrete wall panels, and that mastic was confirmed to contain less than one percent asbestos by both PLM and TEM NOB. As discussed above, numerous colors and consistencies of "puck" mastic have been identified at this building for numerous applications, and some of these mastics may also contain asbestos. This material is not anticipated to require disturbance by this project.

As discussed elsewhere in this report, not all areas of the site were inspected, and not all materials were sampled or identified. This report assumes that additional asbestos-containing materials may be present. Any work which will disturb existing building materials that have not been shown to not contain asbestos must be performed by trained asbestos workers unless representative sampling performed by qualified persons shows otherwise.

C. Regulatory Discussion

Asbestos-related work is a highly regulated industry, and the assessment performed by HTRW, LLC was partially intended to identify asbestos-containing materials so that the health and safety requirements of various governing agencies as they relate to asbestos work could be satisfied. A partial listing of applicable public laws, statutes, and regulations include:

- Occupational Safety and Health Administration:
  - 29 CFR 1910.134 – Respiratory Protection
  - 29 CFR 1910.1001 – Asbestos in General Industry
  - 29 CFR 1910.1200 – Hazard Communication
  - 29 CFR 1926.33 – Access to Employee Exposure and Medical Records
  - 29 CFR 1926.55 – Gases, Vapors, Fumes, Dusts, and Mists
  - 29 CFR 1926.59 – Hazard Communication
  - 29 CFR 1926.103 – Respiratory Protection
  - 29 CFR 1926.1101 – Asbestos in Construction
- United States Environmental Protection Agency:
  - 40 CFR Part 61, Subpart A – General Provisions
  - 40 CFR Part 61, Subpart M – National Emission Standard for Asbestos
  - 40 CFR Part 763 – Asbestos

HAZARDOUS MATERIALS ASSESSMENT

- United States Department of Transportation:
  - 49 CFR Part 107 – Hazardous Materials Program Procedures
  - 49 CFR Part 171 – General Information, Regulations, and Definitions
  - 49 CFR Part 172 – Hazardous Materials Table, Special Provisions, Hazardous Materials Communications, Emergency Response Information, Training Requirements, and Security Plans
  - 49 CFR Part 173 – Shippers- General Requirements for Shipments and Packagings
- Alaska Statutes:
  - AS Section 18.31 – Asbestos
  - AS Section 18.60 – Safety
  - AS Section 18.62 – Certificates of Fitness
  - AS Section 23.05 – Department of Labor and Workforce Development
- Alaska Administrative Code:
  - 8 AAC 61 – Occupational Safety and Health Division
  - 8 AAC 61.600-790 – Asbestos Abatement Certification
  - 8 AAC 61.1010-1190 – Occupational Safety and Health Standards
  - 18 AAC 60 – Solid Waste Management
  - 18 AAC 60.450 – Asbestos Disposal Regulations
  - 18 AAC 62 – Hazardous Waste
  - 18 AAC 70 – Water Quality Standards
  - 18 AAC 72 – Wastewater Treatment and Disposal
  - 18 AAC 75 – Oil and Other Hazardous Substances Pollution Control

The removal and disposal of materials containing asbestos is regulated in different ways by different regulatory agencies. The main difference which drives which regulations apply is whether the affected areas are classified as a "school building" as defined by 40 CFR 763.83. 40 CFR 763 Subpart E, Asbestos-Containing Materials in Schools, is commonly referred to as "AHERA" and contains several requirements specific to "school buildings" which may not be required in other types of buildings. Specific requirements for facilities meeting the definition of a "school building" include the requirement to designate persons to ensure the requirements of the regulation are properly implemented, requires initial and periodic inspections, the development and maintenance of an asbestos management plan, specifies training requirements, annual notification requirements, recordkeeping and labeling requirements, clearance air sampling, among other requirements unique to "school buildings". Although these requirements are specific to "school buildings", many of the same requirements are commonly required by contracts.

Three of the other main asbestos regulations which govern asbestos-related work in most facilities, including schools, include 29 CFR 1926.1101 for worker protection, 40 CFR 61 Subpart M for inspection and disposal requirements related to renovation and demolition activities, and Title 49 CFR, Subtitle B, Chapter I, Subchapter C (DOT, Hazardous Materials Regulations 49 CFR Parts 171-185) for the transportation of materials containing asbestos.

D. Conclusions and Recommendations

The disturbance and disposal of asbestos-containing materials are subject to regulation by the agencies described above among others. All asbestos-related work must be performed in accordance with all applicable laws whether they are referenced within this report or not.

8. Lead

HTRW, LLC tested painted materials and other materials suspected of containing lead at miscellaneous locations throughout the project areas. Tests were performed using a SciApps X-550 X-Ray Fluorescence (XRF) analyzer with

HAZARDOUS MATERIALS ASSESSMENT

serial number 00528. Testing by XRF is a non-destructive and near instantaneous test method capable of determining the lead content of various materials. The XRF used by HTRW, LLC is approved by the EPA for use in Lead Inspections in accordance with the instrument's Performance Characteristic Sheet (PCS).

The XRF testing performed by HTRW, LLC did not include the testing of all surfaces and materials in the building and was not intended to satisfy any specific regulatory requirement. The intent of the testing was to screen for potential lead-containing paints and materials at the site. The assessment did not include testing or identification of all paints and materials in the building, and additional sampling may be required to determine the applicability of 29 CFR 1910.1025 and/or 29 CFR 1926.62.

Additionally, portions of this building were constructed prior to 1978 and some or all of those portions may be classified as a child occupied facility in accordance with 40 CFR 745, and therefore, may be regulated by 40 CFR 745.

Refer to Appendix B and Appendix D for the following lead-related documentation:

Appendix B.1 - Table of XRF Readings

Appendix B.2 - Lead Inspector Certifications

Appendix D - Drawings of Asbestos and Lead Test Locations

A. Survey Results

Refer to the tables at the beginning of this report for a summary of the materials which were confirmed or assumed to contain lead by this or previous assessments, Appendix B.1 for the results of the XRF testing, and Appendix D for drawings of sample locations.

B. Discussion on Findings

Only trace amounts of lead were identified in the paints and other components tested during the October 2023 assessment, and paints tested during the May 2024 assessment varied from trace amounts to 1.764 mg/cm^2. Paints observed at the site were typically in good condition.

Lead concentrations in solder on copper piping were found up to 0.007 mg/cm^2, and it is assumed that there is solder with higher lead concentrations throughout the building. Lead concentrations in solder on stained glass windows of the "Raven House" were found up to 4.417 mg/cm^2, and it is assumed that other stained glass windows at the building have similar lead concentrations.

Metallic lead components identified at the building include solder on copper piping and stained glass windows noted above, poured lead sealants at bell and spigot pipe connections, and inside of lead-acid batteries.

Lead-containing glazings are assumed to be present on components such as ceramic/porcelain wall tiles, floor tiles, sinks, toilets, and urinals.

Lead-containing "Formica" laminate panels are assumed to be present in the building on components such as countertops and cabinetry.

Other miscellaneous lead-containing materials identified at the building include plastic, rubber, and vinyl-like products.

Due to the age of the building and the lead concentrations found during the limited lead testing, all painted, glazed, laminated, or otherwise coated surfaces should be considered lead-containing unless further testing shows otherwise. XRF technology cannot currently classify paints and other materials as "lead-free" for the purposes of determining if 29 CFR 1926.62 applies, and therefore, additional sampling of materials may be required.

HAZARDOUS MATERIALS ASSESSMENT

C. Regulatory Discussion

Lead-related work is a highly regulated industry, and the assessment performed by HTRW, LLC was partially intended to identify lead-containing materials so that the health and safety requirements of various governing agencies as they relate to lead work could be satisfied. A partial listing of applicable public laws, statutes, and regulations include:

- Occupational Safety and Health Administration:
  - 29 CFR 1910.120 – Hazardous Waste Operations and Emergency Response
  - 29 CFR 1910.134 – Respiratory Protection
  - 29 CFR 1910.1000 – Air Contaminants
  - 29 CFR 1910.1025 – Lead in General Industry
  - 29 CFR 1910.1200 – Hazard Communication
  - 29 CFR 1926.62 – Lead in Construction
  - 29 CFR 1926.65 – Hazardous Waste Operations and Emergency Response
- United States Environmental Protection Agency:
  - 40 CFR 260 – Hazardous Waste Management System: General
  - 40 CFR 261 – Identification and Listing of Hazardous Waste
  - 40 CFR 262 – Standards Applicable to Generators of Hazardous Waste
  - 40 CFR 263 – Standards Applicable to Transporters of Hazardous Waste
  - 40 CFR 264 – Standards for Owners and Operators of Hazardous Waste Treatment, Storage, And Disposal Facilities
  - 40 CFR 265 – Interim Status Standards for Owners and Operators of Hazardous Waste Treatment, Storage, And Disposal Facilities
  - 40 CFR 266 – Standards for The Management of Specific Hazardous Wastes and Specific Types of Hazardous Waste Management Facilities
  - 40 CFR 267 – Standards for Owners and Operators of Hazardous Waste Facilities Operating Under a Standardized Permit
  - 40 CFR 268 – Land Disposal Restrictions
  - 40 CFR 270 – EPA Administered Permit Programs: The Hazardous Waste Permit Program
  - 40 CFR 271 – Requirements for Authorization of State Hazardous Waste Programs
  - 40 CFR 272 – Approved State Hazardous Waste Management Programs
  - 40 CFR 273 – Standards for Universal Waste Management
  - 40 CFR 745 Lead-Based Paint Poisoning Prevention in Certain Residential Structures
- United States Department of Transportation:
  - 49 CFR Part 107 – Hazardous Materials Program Procedures
  - 49 CFR Part 171 – General Information, Regulations, and Definitions
  - 49 CFR Part 172 –Hazardous Materials Table, Special Provisions, Hazardous Materials Communications, Emergency Response Information, Training Requirements, and Security Plans
  - 49 CFR Part 173 – Shippers- General Requirements for Shipments and Packagings
- Alaska Statutes:
  - AS Section 18.60 – Safety
  - AS Section 18.62 – Certificates of Fitness
  - AS Section 18.63 – Hazardous Painting Certification
  - AS Section 23.05 – Department of Labor and Workforce Development
- Alaska Administrative Code:
  - 8 AAC 61 – Occupational Safety and Health Division
  - 8 AAC 61.800-890 – Painting Certification
  - 8 AAC 61.1010-1190 – Occupational Safety and Health Standards
  - 18 AAC 60 – Solid Waste Management

HAZARDOUS MATERIALS ASSESSMENT

- 18 AAC 62 – Hazardous Waste
- 18 AAC 70 – Water Quality Standards
- 18 AAC 72 – Wastewater Treatment and Disposal
- 18 AAC 75 – Oil and Other Hazardous Substances Pollution Control

The disturbance of lead-containing materials is subject to regulation by 29 CFR 1910.1025 and 29 CFR 1926.62. Which regulation governs depends on whether the planned work is classified as construction work or as other work in accordance with OSHA regulations. OSHA's lead regulations do not limit the definition of lead-containing materials to only "paints" and generally include any material containing lead. Similarly, OSHA's lead regulations do not specify a threshold to determine whether a material is considered to be lead-containing or not. OSHA has instead released several formal letters of interpretation which indicate that the scope of the regulation is intended to protect persons from occupational exposure to lead, and therefore, the regulations apply to any material containing lead at any concentration. OSHA's lead regulations contain "trigger tasks" which establish presumptive exposure limits for progressively higher-risk tasks, and those "trigger tasks" form the basis of the employer's initial and ongoing obligations and responsibilities to ensure employees are protected from lead exposure. Each project is unique, and the extent to which the work is regulated must be determined on a case-by-case basis. It is the Owner's and/or contractor's responsibility to review the "trigger tasks" and other requirements of 29 CFR 1910.1025 or 29 CFR 1926.62 to determine which portions apply, if any, to each unique work task required by the project.

Disturbance of paints classified as "lead-based" is subject to regulation by 40 CFR 745, and which portions of the regulation govern depends on whether the planned work is classified as "abatement" as defined by 40 CFR 745.223 (a). Construction projects generally do not meet the definition of "abatement" work and will typically be considered a "Renovation, Repair, or Painting" (RRP) activity under the regulation and would therefore be regulated by 40 CFR 745 Subpart E – Residential Property Renovation. Projects meeting the definition of "abatement" are regulated by 40 CFR 745 Subpart L – Lead-Based Paint Activities.

After establishing which regulation is applicable to the work, the degree to which the work is regulated depends on numerous factors and must be determined on a case-by-case basis. The main pertinent factors include: when was the facility constructed, what age groups occupy the building, where in the building are those groups are located, what is the duration of occupancy for the age groups, are lead-based paints known or assumed to be present, and what quantity of lead-based paint will be disturbed in each area. It is the Owner's and/or contractor's responsibility to review the requirements of 40 CFR 745 to determine which portions apply, if any, to each unique work task required by the project.

The disposal of lead-containing materials is regulated by the EPA, and the extent to which disposal is regulated depends mainly on the type of waste being disposed of and whether the waste is classified as a hazardous or non-hazardous waste in accordance with 40 CFR 261. Typical lead-containing wastes generated during construction projects include, but are not limited to, construction and demolition debris wastes which contain lead, metallic lead wastes, and Universal Waste lead-acid batteries.

All wastes meeting the definition of a "solid waste" as defined by 40 CFR 261.2 must have a hazardous waste determination in accordance with 40 CFR 261 to further characterize the wastes as hazardous or non-hazardous. The regulations contain many exclusions and other criteria for defining a solid waste, however, for the purposes of this report that definition may be thought of as any waste generated during the course of the construction project.

Construction and demolition debris wastes which contain lead must be TCLP tested in accordance with 40 CFR 261. The results of the TCLP will determine whether the waste stream is characterized as a hazardous or non-hazardous waste for lead, and thus, how those wastes must be managed. There are many factors which can influence the TCLP testing results, such as what lead-containing materials are present in the waste stream, the condition of those materials, how the waste streams are segregated, the total proportion of lead-containing wastes to each individual waste stream, sample selection, among others. Based on studies performed by the United States Army and prior review of TCLP testing results, most construction and demolition debris waste streams are not likely to be classified

HAZARDOUS MATERIALS ASSESSMENT

as a hazardous waste for lead when the waste stream for the entire project is considered. Waste streams which contain relatively large quantities of materials containing high levels of lead or waste streams in which the lead-containing wastes are disproportionately segregated are more likely to be classified as a hazardous waste.

Metallic lead or components with metallic lead by themselves would likely be classified as a hazardous waste. However, these types of wastes can typically be recycled, and the hazardous waste regulations provide an exemption to these wastes as long as they are recycled and managed in accordance with 40 CFR 261.

Lead-acid batteries contain metallic lead and corrosive liquids which are both considered hazardous wastes by 40 CFR 261. However, lead-acid batteries may be managed as a Universal Waste in accordance with 40 CFR 273.

D. Conclusions and Recommendations

The disturbance and disposal of lead-containing paints and other materials are subject to regulation by the agencies described above among others. All lead-related work must be performed in accordance with all applicable laws whether they are referenced within this report or not.

9. Other Common Hazardous Building Materials

Other ***common hazardous building materials*** include mercury-containing materials, PCB-containing light ballasts, Ozone Depleting Substances (ODS), materials with radioactive components, and heat transfer fluids.

A. Mercury

The assessment included inspection for components suspected of containing mercury, but no sampling of materials suspected of containing mercury was conducted as part of the assessment.

a. Survey Results

Refer to the tables at the beginning of this report for a summary of the materials which were confirmed or assumed to contain mercury by this or previous assessments.

b. Discussion on Findings

Light fixtures in the building contained a mixture of T8 and T12 fluorescent lamps, compact fluorescent lamps, high intensity discharge lamps, and LED lighting. No mercury-containing equipment was observed but may also be present.

Poured polyurethane floors commonly found in multi-purpose rooms, gymnasiums, and other athletic facilities may contain elemental mercury in concentrations exceeding regulatory thresholds for hazardous wastes. Phenylmercuric Acetate (PMA) was historically used as a catalyst in certain formulations of these types of floors, and studies have demonstrated that areas with floors which used PMA consistently have mercury vapor concentrations exceeding local background concentrations of mercury vapor. Based on currently available studies, there is no apparent consensus on which manufacturers used PMA in their formulations or during which timeframes PMA was most commonly used.

The concentrations of mercury vapor in areas which used PMA have been shown by several studies to vary greatly due to many factors such as: the overall mercury content of the floor, the floor's condition, the floor's age, the total surface area of the floor, the total volume of the space where the floor is located, temperature, ventilation system design, ventilation rate, the types of activities occurring in the space and their frequency, among others. Generally speaking, increases in the overall mercury content of the floor, damage to the floor, the surface area of the floor, the temperature, and activities in the space will tend to result in increases to mercury vapor concentrations. Conversely, increases in the age of the floor, the volume of the space where the floor is located, and ventilation rates will tend to result in reductions to mercury vapor concentrations. Because many variables, such as the age of the

HAZARDOUS MATERIALS ASSESSMENT

floor or volume of the space, are difficult or impossible to control by either administrative or engineering controls, most studies agree that controlling and maintaining temperature and adequate ventilation to an area is the most effective way to reduce mercury vapor concentrations while the flooring remains in place.

Depending on the total mercury content of poured polyurethane flooring materials using EPA Method SW-846-7174B, and additional analysis for leachable mercury using the Toxicity Characteristic Leaching Procedure (TCLP) using EPA Method 7470A, the flooring may be classified as either a Low Mercury Subcategory or High Mercury-Inorganic Subcategory hazardous waste in accordance with 40 CFR 261.

As a poured floor, it is assumed to have penetrated into porous surfaces, including adjacent concrete block walls and other porous surfaces.

According to the existing hazardous materials documentation for the building, one sample of the poured polyurethane flooring in the Gym was previously collected and was analyzed for total mercury content using EPA Method SW-846-7174B. Additional analysis for leachable mercury using the Toxicity Characteristic Leaching Procedure (TCLP) was performed using EPA Method 7470A. The total mercury content of the flooring sample was reported as 170 mg/Kg (milligrams of mercury per Kilogram of analyte) of mercury. The amount of leachable mercury of the flooring was reported as 0.66 mg/L (milligrams of mercury per Liter of leachate) of mercury. Based on these results, the flooring is classified as a Low Mercury Subcategory hazardous waste in accordance with 40 CFR 261.

The flooring material in the Gym appears to have been replaced based on observations during the May 2023 assessments, however, the flooring in the MPR appears consistent with flooring found in other ASD facilities which have previously been confirmed to be classified as a hazardous waste for mercury and it is recommended that the flooring be assumed to be a hazardous waste until tested. The flooring material is not anticipated to require disturbance to accommodate the scope of work for this project.

c. Regulatory Discussion

Mercury is commonly found in fluorescent, high intensity discharge, neon, mercury vapor, high pressure sodium, and metal halide lamps; in mercury-containing equipment such as thermostats, controls, and switches; and in poured rubber-like polyurethane flooring. These materials are regulated in different ways depending on the amount of mercury present, the condition of the components which contain mercury, and the quantity of mercury-containing materials being removed.

Materials which contain greater than 0.2 mg/L of mercury by TCLP testing are classified as a hazardous waste by the EPA and DOT and are subject to special packaging, labeling, disposal, transportation, and documentation requirements in accordance with Title 40 CFR, Chapter I, Subchapter I (EPA, Solid Wastes regulations 40 CFR 239-299) and Title 49 CFR, Subtitle B, Chapter I, Subchapter C (DOT, Hazardous Materials Regulations 49 CFR Parts 171-185).

Components such as lamps and thermostats can typically be classified as a hazardous waste based on visual inspection, either by cross referencing manufacturer labels on lamps to the testing results published by the manufacturer, or due to the visible presence of elemental mercury. Similarly, some lamps can be classified as a non-hazardous waste by cross referencing manufacturer labels on lamps to the testing results published by the manufacturer. The use of lamps with “green tip” or “eco” labels does not guarantee that the lamps do not contain mercury above regulatory thresholds for hazardous wastes, and all bulbs must be inspected to determine whether they are classified as a hazardous waste or not.

Mercury-containing lamps and equipment may alternatively be managed as a Universal Wastes in accordance with 40 CFR 273. The purpose of the Universal Waste regulations is to streamline the hazardous waste management standards for certain categories of hazardous waste that are commonly generated by a wide variety of establishments by promoting the collection and recycling of Universal Waste, easing the regulatory burden on retail stores and other generators that wish to collect these wastes and transporters of these wastes, and to encourage the development of municipal and commercial programs to reduce the quantity of these wastes going to municipal

HAZARDOUS MATERIALS ASSESSMENT

solid waste landfills or combustors. However, the EPA does not require that mercury-containing lamps or equipment be managed as Universal Wastes, and these types of wastes may be managed as hazardous waste if the generator desires.

As stated above, materials which contain greater than 0.2 mg/L of mercury by TCLP testing are classified as a hazardous waste by the EPA and are subject to special packaging, labeling, disposal, transportation, and documentation requirements. The EPA further categorizes mercury-containing hazardous wastes into eight different subcategories, of which, poured polyurethane flooring materials will typically fall under one of two subcategories. The first subcategory is the High Mercury-Inorganic Subcategory which includes materials that contain greater than or equal to 260 mg/Kg of total mercury. The second subcategory is the Low Mercury Subcategory which includes materials that contain less than 260 mg/Kg of total mercury. Flooring which falls in the High Mercury-Inorganic Subcategory requires special treatment prior to disposal and will therefore generally increase disposal costs.

Refer to paragraph F Regulatory References below for a partial listing of applicable regulations.

d. Conclusions and Recommendations

The disturbance and disposal of mercury-containing materials are subject to regulation by the agencies described above among others. All mercury-related work must be performed in accordance with all applicable laws whether they are referenced within this report or not.

B. PCB-Containing Materials

The assessment did not include inspection of light fixtures in the building to determine if PCB-containing light ballasts and/or contamination from a former ballast were present.

This building may also have PCB-containing building materials which may be affected by the project scope of work which may be regulated for disposal by Alaska Department of Environmental Conservation regulations issued under Title 18 of the Alaska Administrative Code.

a. Survey Results

Refer to the tables at the beginning of this report for a summary of the materials which were confirmed or assumed to contain PCBs by this or previous assessments.

b. Discussion on Findings

No PCB-containing light ballasts or apparent contamination were observed, however, the exterior high intensity discharge fixtures are assumed to have a PCB-ballast which could not be observed. Based on the existing hazardous materials information for the facility, PCB-containing light ballasts have previously been identified in the building and this report assumes that some PCB ballasts may remain in the building.

Polychlorinated Biphenyls (PCBs) were once widely used for various industrial and commercial applications such as in electrical equipment, heat transfer equipment, and hydraulic equipment; as a plasticizer in paints, plastics, and rubber products; as pigments and dyes for carbonless copy paper; among other industrial applications. The manufacturing and use of PCBs at certain concentrations was banned for most products in 1979 by the EPA. Stocks of supplies could be used after this date, and many PCB-containing materials are known to have been used after 1979.

Paints and caulking are two materials that commonly contain PCBs, and it is possible that PCB-containing paints and caulking are present at this site. Other common materials that have historically been shown to contain PCBs include printed circuit boards and attached components like transistors and capacitors, hydraulic fluids, oils, wire and cable insulation, plastic products, fiberglass, felt, foams, cork, miscellaneous adhesives and tapes, flooring products, among many other less-common building-related uses.

HAZARDOUS MATERIALS ASSESSMENT

c. Regulatory Discussion

Materials which contain PCBs are regulated in different ways which depends mainly on what concentrations and types of PCBs are present, what physical form the PCBs are in, what components the PCBs were used in, and how the PCB wastes were generated. The transportation and disposal of PCBs are regulated by the EPA, DOT, the Alaska Department of Environmental Conservation, and the Alaska Department of Transportation and Public Facilities and are subject to special packaging, labeling, disposal, transportation, and documentation requirements in accordance with 40 CFR 761; Title 49 CFR, Subtitle B, Chapter I, Subchapter C (DOT, Hazardous Materials Regulations 49 CFR Parts 171-185); 17 AAC 25, 18 AAC 60.

Under federal regulations found at 40 CFR 761.62, certain materials meeting the definition of "PCB Bulk Product waste" may be disposed of "in a facility permitted, licensed, or registered by a State as a municipal or non-municipal non-hazardous waste landfill". Most PCB wastes generated by renovation or demolition activities at buildings will fall under the classification of a "PCB Bulk Product waste" which would allow for disposal at a non-TSCA landfill. However, based on guidance from the Alaska DEC and their interpretation of the Alaska Administrative Code, no PCB wastes exceeding 1 mg/Kg of total PCBs are currently allowed to be disposed of at any location in Alaska.

According to the Alaska DEC's interpretation of the Alaska Administrative Code, landfill owners and operators are obligated to prohibit the disposal of wastes containing PCBs in accordance with 18 AAC 60.240, and this is accomplished mainly by implementing "*a program at the facility to detect and prevent the disposal of regulated hazardous waste and PCB waste as defined in 40 C.F.R. 761.3*". Although there is no specific requirement for a landfill owner or operator to sample materials to determine the presence or concentration of PCBs under 18 AAC 60.240, because it is not possible to determine the presence or concentrations of PCBs by visual means, it is the DEC's interpretation that sampling is thus an inferred requirement under the AAC. Additionally, guidance from the Alaska DEC provides that building wastes could potentially be classified as "*polluted soil*" by 18 AAC 60.990(103)(B) "*a residue or other material that is placed into a landfill and that is not a regulated hazardous waste but contains a hazardous substance in a concentration exceeding the applicable soil cleanup levels set out in 18 AAC 75.341, Table B1 or Table B2*". Table B1 in 18 AAC 75.341 shows the soil cleanup levels for PCBs as 1.0 mg/kg, and therefore, this is the criteria which has been used by this report to determine the applicability of Alaska DEC regulations to the wastes.

Additionally, landfill owners and operators may set more stringent criteria than either Alaska DEC or EPA requirements. This report assumes that waste which may be accepted for disposal at landfills located within Alaska to be less than 1.0 mg/kg of total PCBs, and that waste equaling or exceeding 1.0 mg/kg of total PCBs will be disposed of at a landfill permitted and willing to accept the wastes located somewhere in the Pacific Northwest.

Refer to paragraph F Regulatory References below for a partial listing of applicable regulations.

d. Conclusions and Recommendations

The disturbance and disposal of PCB-containing materials are subject to regulation by the agencies described above among others. All PCB-related work must be performed in accordance with all applicable laws whether they are referenced within this report or not.

C. Ozone Depleting Substances

The assessment included a visual inspection of a limited number of components in the building to determine if ODS were present.

a. Survey Results

Refer to the tables at the beginning of this report for a summary of the materials which were confirmed or assumed to contain ODS by this or previous assessments.

HAZARDOUS MATERIALS ASSESSMENT

b. Discussion on Findings

No equipment with ODS was observed on the roof, and no equipment with ODS are anticipated to be affected by the proposed scope of work for this project. Equipment with ODS are assumed to be present at the site in items such as consumer-grade refrigeration equipment, commercial refrigeration equipment, refrigerated drinking fountains, small air conditioning units in IT closets, and other common equipment. Formulations of ODS at the site are assumed to include both Class I and Class II ODS.

c. Regulatory Discussion

Ozone Depleting Substances (ODS) are broadly categorized by the EPA as either Class I ODS or Class II ODS. Class I ODS have an ozone depletion potential of 0.2 or higher, and include halons, chlorofluorocarbons (CFCs), methyl chloroform, carbon tetrachloride, and methyl bromide. Class I ODS have been subject to an accelerated phaseout schedule by the EPA. Class II ODS have an ozone depletion potential less than 0.2 and are all hydrochlorofluorocarbons (HCFCs). Class II ODS were typically developed as replacements to Class I ODS and have a later phaseout schedule than Class I ODS.

All ODS work must be performed by personnel who have passed an EPA-approved test for certification under 40 CFR 82.161. There are four types of certifications available under 40 CFR 82.161: Type I is required for persons servicing small appliances; Type II is required for servicing or disposing of high- or very high-pressure appliances, except small appliances and MVACs (Motor Vehicle Air Conditioning); Type III is required for servicing or disposing of low-pressure appliances; and Universal technician certification and allows for servicing all types of equipment. Servicing of motor vehicle air conditioning systems requires training and certification in accordance with 40 CFR 82 Subpart B which is generally not needed for building systems and components.

Refer to paragraph F Regulatory References below for a partial listing of applicable regulations.

d. Conclusions and Recommendations

The disturbance and disposal of ODS are subject to regulation by the agencies described above among others. All ODS-related work must be performed in accordance with all applicable laws whether they are referenced within this report or not.

D. Components with Radioactive Materials

The assessment included a visual inspection of a limited number of components in the building to determine if radioactive materials were present.

a. Survey Results

Refer to the tables at the beginning of this report for a summary of the materials which were confirmed or assumed to contain radioactive materials by this or previous assessments.

b. Discussion on Findings

No self-illuminating exit signs or smoke detectors were observed in the building but may be present.

c. Regulatory Discussion

Certain components in buildings have been historically known to contain radioactive elements, such as self-illuminating exit signs with a radioactive form a hydrogen called tritium, and smoke detectors with americium-241, radium-226, or nickel-63. These components are considered safe when intact and used in accordance with the manufacturer's instructions and may typically be removed without special training. However, the transportation and disposal of components with radioactive elements is regulated by the Nuclear Regulatory Commission (NRC) under

HAZARDOUS MATERIALS ASSESSMENT

Title 10 CFR, Chapter I (10 CFR Parts 1-199) and is typically performed by returning the components to the manufacturer or other firm licensed by the NRC to accept radioactive wastes.

Refer to paragraph F Regulatory References below for a partial listing of applicable regulations.

d. Conclusions and Recommendations

The disturbance and disposal of radioactive materials are subject to regulation by the agencies described above among others. All radioactive materials-related work must be performed in accordance with all applicable laws whether they are referenced within this report or not.

E. Heat Transfer Fluids

The assessment included a limited visual inspection of heating system components in the building to determine what types of heat transfer fluids were present.

a. Survey Results

Refer to the tables at the beginning of this report for a summary of the materials which were confirmed or assumed to contain heat transfer fluids by this or previous assessments.

b. Discussion on Findings

The existing heating system at the building had a green-colored glycol heat transfer fluid of unknown formulation which is assumed to not be classified as a hazardous waste.

c. Regulatory Discussion

Heating and cooling systems in buildings (and generators) may contain heat transfer fluids which are potentially classified as a hazardous waste or other special waste category. These systems typically use various formulations of glycols or water and other additives in order to achieve the desired performance characteristics. Some types of heat transfer fluids may be classified as a hazardous waste or other special waste category based on the original formulation. Additionally, heat transfer fluids are subject to variations in temperature, pH, velocity, age, among other variables which can alter the chemistry of the fluids in unpredictable ways. Due to these variations, heat transfer fluids must have a hazardous waste determination performed prior to disposal in accordance with 40 CFR 261. This determination includes collecting a representative sample of the heat transfer fluids which will be disposed of and having a TCLP test performed on the sample. The TCLP test must include analysis for the RCRA 8 metals at a minimum, and corrosivity must also be determined. Additional testing may be required due to unique circumstances of any particular heating and cooling system.

Based on available data, heat transfer fluids are not typically classified as a hazardous waste, and if recycled, are typically exempt from the hazardous waste regulations.

Refer to paragraph F Regulatory References below for a partial listing of applicable regulations.

d. Conclusions and Recommendations

The disturbance and disposal of heat transfer fluids are subject to regulation by the agencies described above among others. All work involving heat transfer fluids must be performed in accordance with all applicable laws whether they are referenced within this report or not.

HAZARDOUS MATERIALS ASSESSMENT

F. Regulatory References

Work involving the removal and disposal of ***common hazardous building materials*** is a highly regulated industry, and the assessment performed by HTRW, LLC was partially intended to identify those ***common hazardous building materials*** so that the health and safety requirements of various governing agencies as they relate to those materials could be satisfied. A partial listing of applicable public laws, statutes, and regulations include:

- Nuclear Regulatory Commission:
  - 10 CFR 20 – Standards for Protecting Against Radiation
- Occupational Safety and Health Administration:
  - 29 CFR 1910.120 – Hazardous Waste Operations and Emergency Response
  - 29 CFR 1910.134 – Respiratory Protection
  - 29 CFR 1910.1000 – Air Contaminants
  - 29 CFR 1910.1200 – Hazard Communication
  - 29 CFR 1926.55 – Gases, Vapors, Fumes, Dusts, and Mists
  - 29 CFR 1926.57 – Ventilation
  - 29 CFR 1926.65 – Hazardous Waste Operations and Emergency Response
  - 29 CFR 1926.95 – Criteria for Personal Protective Equipment
  - 29 CFR 1926.353 – Ventilation and Protection in Welding, Cutting, and Heating
- United States Environmental Protection Agency:
  - 40 CFR 82 – Protection of Stratospheric Ozone
  - 40 CFR 260 – Hazardous Waste Management System: General
  - 40 CFR 261 – Identification and Listing of Hazardous Waste
  - 40 CFR 262 – Standards Applicable to Generators of Hazardous Waste
  - 40 CFR 263 – Standards Applicable to Transporters of Hazardous Waste
  - 40 CFR 264 – Standards for Owners and Operators of Hazardous Waste Treatment, Storage, And Disposal Facilities
  - 40 CFR 265 – Interim Status Standards for Owners and Operators of Hazardous Waste Treatment, Storage, And Disposal Facilities
  - 40 CFR 266 – Standards for The Management of Specific Hazardous Wastes and Specific Types of Hazardous Waste Management Facilities
  - 40 CFR 267 – Standards for Owners and Operators of Hazardous Waste Facilities Operating Under a Standardized Permit
  - 40 CFR 268 – Land Disposal Restrictions
  - 40 CFR 270 – EPA Administered Permit Programs: The Hazardous Waste Permit Program
  - 40 CFR 271 – Requirements for Authorization of State Hazardous Waste Programs
  - 40 CFR 272 – Approved State Hazardous Waste Management Programs
  - 40 CFR 273 – Standards for Universal Waste Management
  - 40 CFR 761 – Polychlorinated Biphenyls (PCBs) Manufacturing, Processing, Distribution in Commerce, and Use Prohibitions
- United States Department of Transportation:
  - 49 CFR Part 107 – Hazardous Materials Program Procedures
  - 49 CFR Part 171 – General Information, Regulations, and Definitions
  - 49 CFR Part 172 –Hazardous Materials Table, Special Provisions, Hazardous Materials Communications, Emergency Response Information, Training Requirements, and Security Plans
  - 49 CFR Part 173 – Shippers- General Requirements for Shipments and Packagings
- Alaska Statutes:
  - AS Section 18.60 – Safety
  - AS Section 23.05 – Department of Labor and Workforce Development

HAZARDOUS MATERIALS ASSESSMENT

- Alaska Administrative Code:
  - 8 AAC 61 – Occupational Safety and Health Division
  - 8 AAC 61.1010-1190 – Occupational Safety and Health Standards
  - 18 AAC 60 – Solid Waste Management
  - 18 AAC 62 – Hazardous Waste
  - 18 AAC 70 – Water Quality Standards
  - 18 AAC 72 – Wastewater Treatment and Disposal
  - 18 AAC 75 – Oil and Other Hazardous Substances Pollution Control
  - 18 AAC 85 – Radiation Protection

10. Other Materials and Considerations

Other potentially hazardous materials may be present at the site, and there may also be other health, safety, and environmental considerations which are not a part of this report. Examples of these other potentially hazardous materials may include, but are not limited to: wastes classified as Hazardous Wastes; Hazardous Substances; Toxic and Hazardous Substances; Biological Wastes; among others. Examples of other health and safety considerations include, but are not limited to: electrical hazards; fire hazards; hazards from dust, odors, and fumes; scaffolding hazards; among others generally defined in 20 CFR 1910 – General Industry, 29 CFR 1926 – Construction, and other non-specific hazards subject to the General Duty Clause.

This report identifies those materials defined by this report as ***common hazardous building materials***, however, these materials include only a small portion of the potential health, safety, and environmental hazards which may be present at the site. It is the duty of each employer to analyze each unique situation to determine potential health, safety, or environmental hazards which may be present. Persons performing these analysis may include, but are not limited to: those meeting the OSHA definition of an Authorized Person, Competent Person, or Qualified Person; individuals certified as a Certified Safety Professional, Certified Industrial Hygienist, or Certified Environmental Professional; individuals with academic degrees in Occupational Safety and Health and other closely related degrees.

Although most sites contain various potentially hazardous materials and workplace hazards, the assessment was not intended to identify and characterize each individual material or hazard. Materials or hazards which were apparent or noteworthy in the inspector's professional opinion were noted and are discussed below. Materials or hazards which could reasonably be expected to present immediate dangers to the health and safety of the site's occupants or others were noted and appropriate representatives notified.

A. Survey Results

Various cementitious products were present at the site, such as concrete block walls, pre-cast concrete wall panels, poured concrete foundations, EIFS, concrete roof pavers, and other products. These specific products are assumed to contain crystalline silica, but other components may be present at the site which also contain crystalline silica.

B. Discussion on Findings

Materials including, but not limited to, natural and artificially created sand, stone, rock, concrete, brick, block, mortar, ceramics, glass, pottery, and various blasting medias typically contain crystalline silica, and the disturbance of these types of materials are regulated by 29 CFR 1910.1053 and 29 CFR 1926.1153 if the crystalline silica is respirable. Respirable crystalline silica is defined by regulation as:

Quartz, cristobalite, and/or tridymite contained in airborne particles that are determined to be respirable by a sampling device designed to meet the characteristics for respirable-particle-size-selective samplers specified in the International Organization for Standardization (ISO) 7708:1995: Air Quality—Particle Size Fraction Definitions for Health-Related Sampling

HAZARDOUS MATERIALS ASSESSMENT

A more generalized definition of respirable crystalline silica is "very small particles at least 100 times smaller than ordinary sand you might find on beaches and playgrounds". Activities including, but not limited to, cutting, sawing, sanding, grinding, drilling, crushing, and abrasive blasting of materials containing crystalline silica will result in worker exposures to respirable crystalline silica dust.

C. Regulatory Discussion

There are numerous regulations governing other potentially hazardous materials or other health, safety, or environmental issues. A partial listing of applicable public laws, statutes, and regulations include:

- United States Code of Federal Regulations:
  - Title 1 – General Provisions
  - Title 24 – Housing and Urban Development
  - Title 29 – Labor
    - 29 CFR 1910.1053 – Respirable Crystalline Silica in General Industry
    - 29 CFR 1926.1153 – Respirable Crystalline Silica in Construction
  - Title 40 – Protection of the Environment
  - Title 46 – Shipping
  - Title 49 – Transportation
- Alaska Statutes:
  - AS Section 18.60 – Safety
  - AS Section 23.05 – Department of Labor and Workforce Development
- Alaska Administrative Code:
  - 8 AAC 61 – Occupational Safety and Health Division

D. Conclusions and Recommendations

All employers working at the site are responsible for identifying other potentially hazardous materials or other health, safety, and environmental hazards, and all work must be performed in accordance with all applicable laws whether they are referenced within this report or not.

11. Limitations

The conclusions and recommendations contained in this report are based on professional opinions with regard to the subject matter. These opinions have been arrived at in accordance with currently accepted consulting and industry standards and practices and are subject to the following inherent limitations:

A. Accuracy of Information

The conclusions, opinions, and recommendations found in this report are based in large part on the results of the laboratory analysis of samples of building materials collected during the limited assessments. Should such information provided be found to be inaccurate or unreliable, HTRW, LLC reserves the right to amend or revise its conclusions, opinions, and/or recommendations.

B. Site Conditions

This limited assessment did not include investigation of the entire site and may not be valid outside the assessment boundaries. The intent of this assessment was to identify ***common hazardous building materials*** that may be present at the site which may be affected by the College Gate Elementary School Roof Replacement Project at the building. This assessment was not intended to satisfy any regulatory requirements as they apply to ***common hazardous building materials***. The assessment was performed while the building was occupied, with furniture, equipment and/or stored items in place, and did not include destructive examination to seek out concealed

HAZARDOUS MATERIALS ASSESSMENT

materials, and many ***common hazardous building materials*** may not have been identified. This assessment was not intended to identify all ***common hazardous building materials*** that may be present at the building, however, every attempt was made to identify these materials within the budget and scope agreed on with our client and as detailed in this report. Homogenous areas of ***common hazardous building materials*** may vary from what was observed onsite and subsequently described in this report due to limiting factors such as the lack of historical information, paints and surfacing materials, or other concealing components. Although the information in this report may be used as supplemental information to future activities at the building, additional sampling and investigations must be performed by qualified persons prior to any future maintenance, demolition, or renovation activities.

C. Evolving Regulatory Landscape

Statutes, regulations, interpretations, court rulings, industry standards, best management practices, among other pertinent factors continuously change and evolve over time, and in many cases may be interpreted differently by different authorities having jurisdiction at local, state, federal, or other levels. The content of this report is based on these factors understood to be current at the time of this report and in the locality of where the buildings are located. HTRW, LLC reserves the right to amend or revise the content of this report should any of these factors change.

HAZARDOUS MATERIALS ASSESSMENT

Appendix A – Asbestos

HAZARDOUS MATERIALS ASSESSMENT

Appendix A.1 – Table of Asbestos Samples

College Gate Elementary School, 3101 Sunflower Street, Anchorage, Alaska 99508				
SAMPLE NUMBER	**SAMPLE DESCRIPTION**	**SAMPLE LOCATION**	**PHOTO REFERENCE**	**SAMPLE RESULTS**
CG1023-A01	L1: Light grey chalky sealant used between the EPDM roofing membrane and the VTR L2: Black sealant used between the EPDM roofing membrane and the VTR	North side of Roof D at VTR penetration	01	L1/L1: None Detected, the lab reported the layers were not separable and analyzed as one layer
CG1023-A02	L1: White sealant used between the metal electrical shut-off enclosure and the EPDM roofing membrane	North side of Roof D on east exhaust fan	02	L1: None Detected
CG1023-A03	L1: Light grey rubbery sealant used as a “patch” sealant on some of the metal parapet cap seams	Northwest side of Roof D at corner of parapet bend from the southwest corner of roof C	03	L1: None Detected
CG1023-A04	L1: Black sealant used on the screwheads fastening the conduit “c” clips to the EDPM-covered sidewall	West side of Roof D towards the northern end of the sidewall	04	L1: None Detected by PLM or TEM NOB
CG1023-A05	L1: Black sealant used on the seams of the EPDM roofing membrane	West side of Roof D towards the northern end of the sidewall	05	L1: None Detected
CG1023-A06	L1: Grey rubbery sealant used between an EPDM patch and the sheet metal base of an exhaust fan	Southeast side of Roof C on exhaust fan	06	L1: None Detected by PLM or TEM NOB
CG1023-A07	L1: Black sealant used between the EPDM roofing membrane and a metal conduit	Southeast side of Roof C at conduit penetration	07	L1: None Detected
CG1023-A08	L1: White sealant that appears to have been used to adhere the foam expansion joint material to the EPDM-covered sidewall	North side of Roof C towards the eastern side of the sidewall	08	L1: None Detected
CG1023-A09	L1: Black sealant used on the seams of the EPDM roofing membrane	North side of Roof C near the center of the sidewall	09	L1: None Detected
CG1023-A10	L1: Black sealant used between the EPDM roofing membrane and sheet metal vent pipe	West side of Roof C at southern sheet metal vent pipe penetration	10	L1: None Detected
CG1023-A11	L1: Grey cementitious roofing ballast paver	From Roof Core 01 on south side of Roof D	11	L1: None Detected
CG1023-A12	L1: Black filter fabric	From Roof Core 01 on south side of Roof D	12	L1: None Detected
CG1023-A13	L1: Black EPDM roofing membrane	From Roof Core 01 on south side of Roof D	13	L1: None Detected

College Gate Elementary School, 3101 Sunflower Street, Anchorage, Alaska 99508				
SAMPLE NUMBER	**SAMPLE DESCRIPTION**	**SAMPLE LOCATION**	**PHOTO REFERENCE**	**SAMPLE RESULTS**
CG1023-A14	L1: Brown paper slip sheet	From Roof Core 01 on south side of Roof D	14	L1: None Detected
CG1023-A15	L1: White "DensDeck" sheathing	From Roof Core 01 on south side of Roof D	15	L1: None Detected
CG1023-A16	L1: Black crispy hot-mop tar adhered to corrugated metal roof deck	From Roof Core 01 on south side of Roof D	15	L1: None Detected by PLM or TEM NOB
CG1023-A17	L1: Grey cementitious roofing ballast paver	From Roof Core 02 on northeast side of Roof C	18	L1: None Detected
CG1023-A18	L1: Black filter fabric	From Roof Core 02 on northeast side of Roof C	19	L1: None Detected
CG1023-A19	L1: Black EPDM roofing membrane	From Roof Core 02 on northeast side of Roof C	20	L1: None Detected
CG1023-A20	L1: White "DensDeck" sheathing	From Roof Core 02 on northeast side of Roof C	21	L1: None Detected
CG1023-A21	L1: Black crispy hot-mop tar adhered to corrugated metal roof deck L2: Tan "Kraft" paper vapor barrier	From Roof Core 02 on northeast side of Roof C	22	L1: None Detected L2: None Detected
CG1023-A22	L1: Black sealant used on the seams of the EPDM roofing membrane	Northeast corner of Roof B	23	L1: None Detected by PLM or TEM NOB
CG1023-A23	L1: White sealant that appears to have been used to adhere the foam expansion joint material to the EPDM-covered sidewall	East side of Roof B towards the northern end of the sidewall	24	L1: None Detected
CG1023-A24	L1: Black sealant used between the EPDM roofing membrane and the VTR	Southeast side of Roof B at VTR penetration	25	L1: None Detected by PLM or TEM NOB
CG1023-A25	L1: Black sealant used on the seams of the EPDM roofing membrane	Northwest corner of Roof B	26	L1: None Detected
CG1023-A26	L1: Grey cementitious roofing ballast paver	From Roof Core 03 on northwest side of Roof B	27	L1: None Detected
CG1023-A27	L1: Black filter fabric	From Roof Core 03 on northwest side of Roof B	28	L1: None Detected
CG1023-A28	L1: Black EPDM roofing membrane	From Roof Core 03 on northwest side of Roof B	29	L1: None Detected

College Gate Elementary School, 3101 Sunflower Street, Anchorage, Alaska 99508				
SAMPLE NUMBER	**SAMPLE DESCRIPTION**	**SAMPLE LOCATION**	**PHOTO REFERENCE**	**SAMPLE RESULTS**
CG1023-A29	L1: Brown paper slip sheet	From Roof Core 03 on northwest side of Roof B	30	L1: None Detected
CG1023-A30	L1: White "DensDeck" sheathing	From Roof Core 03 on northwest side of Roof B	31	L1: None Detected
CG1023-A31	L1: Black crispy hot-mop tar adhered to corrugated metal roof deck	From Roof Core 03 on northwest side of Roof B	31	L1: None Detected
CG1023-A32	**L1: Grey gum-like material adhered to roofing ballast paver**	**Near antenna on southwest-center of Roof C**	**32**	**L1: 7.3% Chrysotile**
CG1023-A33	L1: White textured surface of EIFS	Northwest side of Roof A from fascia	33	L1: None Detected
CG1023-A34	L1: Black sealant used between the EPDM roofing membrane and sheet metal vent	West side of Roof A from sheet metal vent	34	L1: None Detected
CG1023-A35	L1: Light grey chalky sealant used between the EPDM roofing membrane and the VTR L2: Black sealant used between the EPDM roofing membrane and the VTR	Near center of Roof A at short VTR penetration	35	L1: None Detected L2: None Detected
CG1023-A36	L1: Grey cementitious roofing ballast paver	From Roof Core 04 on east side of Roof A	37	L1: None Detected
CG1023-A37	L1: Black EPDM roofing membrane	From Roof Core 04 on east side of Roof A	38	L1: None Detected
CG1023-A38	L1: White "DensDeck" sheathing	From Roof Core 04 on east side of Roof A	39	L1: None Detected
CG1023-A39	L1: Black sealant used on the seams of the EPDM roofing membrane	On horizontal seam of EPDM next to Roof Core 04 on east side of Roof A	36	L1: None Detected
CG1023-A40	L1: Sticky, gummy-like grey sealant used inside of roof drain bowls at the clamping rings	Inside of roof drain bowl next to Roof Core 04 on east side of Roof A	41	L1: None Detected
CG1023-A41	L1: Black sealant used on the seams of the EPDM roofing membrane	From horizontal seam of EPDM at base of sidewall on the north side of Roof E	44	L1: None Detected

Appendix A.1 – Table of Asbestos Samples

College Gate Elementary School, 3101 Sunflower Street, Anchorage, Alaska 99508				
SAMPLE NUMBER	**SAMPLE DESCRIPTION**	**SAMPLE LOCATION**	**PHOTO REFERENCE**	**SAMPLE RESULTS**
CG1023-A42	L1: Black sealant used on the seams of the EPDM roofing membrane	From vertical seam of EPDM on sidewall on the north side of Roof E	44	L1: None Detected
CG1023-A43	L1: Grey cementitious roofing ballast paver	From Roof Core 05 on the north side of Roof E	46	L1: None Detected
CG1023-A44	L1: Black filter fabric	From Roof Core 05 on the north side of Roof E	47	L1: None Detected
CG1023-A45	L1: Black EPDM roofing membrane	From Roof Core 05 on the north side of Roof E	48	L1: None Detected
CG1023-A46	L1: Brown paper slip sheet	From Roof Core 05 on the north side of Roof E	49	L1: None Detected
CG1023-A47	L1: White “DensDeck” sheathing	From Roof Core 05 on the north side of Roof E	50	L1: None Detected
CG1023-A48	L1: Black crispy hot-mop tar adhered to corrugated metal roof deck L2: Tan “Kraft” paper vapor barrier	From Roof Core 05 on the north side of Roof E	50	L1: None Detected L2: None Detected
CG1023-A49	L1: Black sealant used between the EPDM roofing membrane and the VTR	From VTR penetration near the center of Roof E	52	L1: None Detected
CG1023-A50	L1: Light grey gum-like material of unknown purpose	At base of VTR penetration near the center of Roof E	53	L1: None Detected
CG1023-A51	L1: Black sealant used on the seams of the EPDM roofing membrane	From horizontal seam of EPDM at base of sidewall on the west side of Roof E	56	L1: None Detected
CG1023-A52	L1: Black sealant used on the seams of the EPDM roofing membrane	From vertical seam of EPDM on sidewall on the west side of Roof E	57	L1: None Detected
CG1023-A53	L1: Sticky, gummy-like grey sealant used inside of roof drain bowls at the clamping rings	Inside of Roof Drain bowl on west side of Roof E	59	L1: None Detected
CG1023-A54	L1: Light grey chalky sealant used between the metal EPDM roofing membrane retainer strip and the pre-cast concrete wall panel	Southeast corner of Roof E	61	L1: None Detected
CG1023-A55	L1: Grey spongy and sticky sealant used on the seams of the pre-cast concrete wall panels	South side of Roof E on walls around MPR	60	L1: None Detected

College Gate Elementary School, 3101 Sunflower Street, Anchorage, Alaska 99508				
SAMPLE NUMBER	**SAMPLE DESCRIPTION**	**SAMPLE LOCATION**	**PHOTO REFERENCE**	**SAMPLE RESULTS**
CG1023-A56	L1: Grey cementitious roofing ballast paver	From Roof Core 06 near center of Roof E	67	L1: None Detected
CG1023-A57	L1: Black filter fabric	From Roof Core 06 near center of Roof E	68	L1: None Detected
CG1023-A58	L1: Black EPDM roofing membrane	From Roof Core 06 near center of Roof E	69	L1: None Detected
CG1023-A59	L1: White "DensDeck" sheathing	From Roof Core 06 near center of Roof E	70	L1: None Detected
CG1023-A60	L1: Black crispy hot-mop tar adhered to corrugated metal roof deck L2: Tan "Kraft" paper vapor barrier	From Roof Core 06 near center of Roof E	71	L1: None Detected L2: None Detected
CG1023-A61	L1: Hard white sealant used between the metal boiler flue and metal collar	From northern boiler flue on Roof M	73	L1: None Detected by PLM or TEM NOB
CG1023-A62	L1: Red-orange rubbery sealant remnant on the outside circumference of the metal boiler flue	From southern boiler flue on Roof M	74	L1: None Detected
CG1023-A63	L1: Grey rubbery sealant used between the metal boiler flue and metal collar	From southern boiler flue on Roof M	75	L1: None Detected
CG1023-A64	L1: Crispy black tar smeared on the top of the roof hatch	South side of Roof M	76	L1: None Detected
CG1023-A65	L1: Black tarry felt paper	Southwest corner of Roof M wedged between the EIFS siding and the pre-cast concrete wall panel	77	L1: None Detected
CG1023-A66	L1: White rubbery sealant used between the metal drip edge and metal coping	Southwest corner of Roof M	78	L1: None Detected
CG1023-A67	L1: Light grey textured surface of EIFS	Southeast corner of Roof M at hole in EIFS siding	79	L1: None Detected
CG1023-A68	**L1: Black roof mastic remnant**	**From mechanical hood on west side of Roof G**	**80**	**L1: None Detected by PLM, 7.7% Chrysotile by TEM NOB**
CG1023-A69	L1: Black sealant used on the seams of the EPDM roofing membrane	West side of Roof J near center of sidewall	82	L1: None Detected

College Gate Elementary School, 3101 Sunflower Street, Anchorage, Alaska 99508				
SAMPLE NUMBER	**SAMPLE DESCRIPTION**	**SAMPLE LOCATION**	**PHOTO REFERENCE**	**SAMPLE RESULTS**
CG1023-A70	L1: White sealant used to adhere the foam expansion joint material to the EPDM-covered mechanical curb	Southwest side of Roof J on sheet metal vent	83	L1: None Detected
CG1023-A71	L1: Light grey textured surface of EIFS	At damaged area of EIFS siding on west side of Roof K, collected from Roof J level	84	L1: None Detected
CG1023-A72	L1: Light grey sealant used as a “patch” sealant on some drip edge seams	South side of Roof J on western end of wall around Gym	85	L1: None Detected
CG1023-A73	L1: Light grey textured surface of EIFS	At bottom of EIFS siding behind ladder on south side of Roof J	86	L1: None Detected
CG1023-A74	L1: Sticky, gummy-like grey sealant used inside of roof drain bowls at the clamping rings	Inside of roof drain bowl on the southeast side of Roof J	88	L1: None Detected by PLM or TEM NOB
CG1023-A75	L1: Black sealant used between the EPDM roofing membrane and the VTR	Southeast side of Roof J at VTR penetration	89	L1: None Detected by PLM or TEM NOB
CG1023-A76	L1: Black sealant used on the seams of the EPDM roofing membrane	East side of Roof J from southern end of sidewall	90	L1: None Detected by PLM or TEM NOB
CG1023-A77	L1: Grey cementitious roofing ballast paver	From Roof Core 08 on north side of Roof F	93	L1: None Detected
CG1023-A78	L1: Black filter fabric	From Roof Core 08 on north side of Roof F	94	L1: None Detected
CG1023-A79	L1: Black EPDM roofing membrane	From Roof Core 08 on north side of Roof F	95	L1: None Detected
CG1023-A80	L1: Brown paper slip sheet	From Roof Core 08 on north side of Roof F	96	L1: None Detected
CG1023-A81	L1: White “DensDeck” sheathing	From Roof Core 08 on north side of Roof F	97	L1: None Detected
CG1023-A82	L1: Black crispy hot-mop tar adhered to corrugated metal roof deck L2: Tan “Kraft” paper vapor barrier	From Roof Core 08 on north side of Roof F	98	L1: None Detected L2: None Detected
CG1023-A83	L1: Grey cementitious roofing ballast paver	From Roof Core 09 on southwest side of Roof C	100	L1: None Detected
CG1023-A84	L1: Black filter fabric	From Roof Core 09 on southwest side of Roof C	101	L1: None Detected

College Gate Elementary School, 3101 Sunflower Street, Anchorage, Alaska 99508				
SAMPLE NUMBER	**SAMPLE DESCRIPTION**	**SAMPLE LOCATION**	**PHOTO REFERENCE**	**SAMPLE RESULTS**
CG1023-A85	L1: Black EPDM roofing membrane	From Roof Core 09 on southwest side of Roof C	102	L1: None Detected
CG1023-A86	L1: Brown paper slip sheet	From Roof Core 09 on southwest side of Roof C	103	L1: None Detected
CG1023-A87	L1: White “DensDeck” sheathing	From Roof Core 09 on southwest side of Roof C	104	L1: None Detected
CG1023-A88	L1: Black crispy hot-mop tar adhered to corrugated metal roof deck	From Roof Core 09 on southwest side of Roof C	105	L1: None Detected
CG1023-A89	L1: Grey cementitious roofing ballast paver	From Roof Core 10 on south side of Roof J	None	L1: None Detected
CG1023-A90	L1: Black plastic separator sheet	From Roof Core 10 on south side of Roof J	None	L1: None Detected
CG1023-A91	L1: Black EPDM roofing membrane	From Roof Core 10 on south side of Roof J	None	L1: None Detected
CG1023-A92	L1: White “DensDeck” sheathing	From Roof Core 10 on south side of Roof J	None	L1: None Detected
CG1023-A93	L1: Black sealant used on the seams of the EPDM roofing membrane	West side of Roof K near center of sidewall	106	L1: None Detected
CG1023-A94	L1: Black sealant used to adhere the foam expansion joint material to the EPDM-covered sidewall	West side of Roof K near center of sidewall	107	L1: None Detected
CG1023-A95	L1: Light grey sealant used as a “patch” sealant on some seams of the EPDM-covered sidewall	North side of Roof K near center of sidewall	108	L1: None Detected
CG1023-A96	L1: Grey cementitious roofing ballast paver	From Roof Core 11 on north side of Roof K	110	L1: None Detected
CG1023-A97	L1: Black plastic separator sheet	From Roof Core 11 on north side of Roof K	111	L1: None Detected
CG1023-A98	L1: Black EPDM roofing membrane	From Roof Core 11 on north side of Roof K	112	L1: None Detected
CG1023-A99	L1: White “DensDeck” sheathing	From Roof Core 11 on north side of Roof K	113	L1: None Detected
CG1023-A100	L1: Grey cementitious roofing ballast paver	From Roof Core 12 on south side of Roof G	115	L1: None Detected

College Gate Elementary School, 3101 Sunflower Street, Anchorage, Alaska 99508				
SAMPLE NUMBER	**SAMPLE DESCRIPTION**	**SAMPLE LOCATION**	**PHOTO REFERENCE**	**SAMPLE RESULTS**
CG1023-A101	L1: Black filter fabric	From Roof Core 12 on south side of Roof G	116	L1: None Detected
CG1023-A102	L1: Black EPDM roofing membrane	From Roof Core 12 on south side of Roof G	117	L1: None Detected
CG1023-A103	L1: Brown paper slip sheet	From Roof Core 12 on south side of Roof G	114	L1: None Detected
CG1023-A104	L1: White “DensDeck” sheathing	From Roof Core 12 on south side of Roof G	118	L1: None Detected
CG1023-A105	L1: Grey cementitious roofing ballast paver	From Roof Core 13 on north side of Roof G	120	L1: None Detected
CG1023-A106	L1: Black filter fabric	From Roof Core 13 on north side of Roof G	121	L1: None Detected
CG1023-A107	L1: Black EPDM roofing membrane	From Roof Core 13 on north side of Roof G	122	L1: None Detected
CG1023-A108	L1: White “DensDeck” sheathing	From Roof Core 13 on north side of Roof G	123	L1: None Detected
CG1023-A109	L1: Black sealant used on the seams of the metal coping on the perimeters of Roof G	North side of Roof G near center of coping	124	L1: None Detected
CG1023-A110	L1: Grey cementitious roofing ballast paver	From Roof Core 14 on northeast side of Roof M	127	L1: None Detected
CG1023-A111	L1: Black filter fabric	From Roof Core 14 on northeast side of Roof M	128	L1: None Detected
CG1023-A112	L1: Black EPDM roofing membrane	From Roof Core 14 on northeast side of Roof M	129	L1: None Detected
CG1023-A113	L1: White “DensDeck” sheathing	From Roof Core 14 on northeast side of Roof M	130	L1: None Detected
CG1023-A114	L1: Grey cementitious roofing ballast paver	From Roof Core 15 on southwest side of Roof I	132	L1: None Detected
CG1023-A115	L1: Black EPDM roofing membrane	From Roof Core 15 on southwest side of Roof I	133	L1: None Detected
CG1023-A116	L1: White “DensDeck” sheathing	From Roof Core 15 on southwest side of Roof I	134	L1: None Detected

College Gate Elementary School, 3101 Sunflower Street, Anchorage, Alaska 99508				
SAMPLE NUMBER	**SAMPLE DESCRIPTION**	**SAMPLE LOCATION**	**PHOTO REFERENCE**	**SAMPLE RESULTS**
CG1023-A117	L1: Black hot-mop tar adhered to tectum roof deck	From Roof Core 13 on north side of Roof G	140	L1: None Detected
CG1023-A118	L1: Grey putty-like material used at cable penetrations through top of metal conduit	East side of Roof F at large conduit with a bundle of cables sticking out of the top	62	L1: None Detected by PLM or TEM NOB
CG1023-A119	L1: Grey spongy and sticky sealant used on the seams of the pre-cast concrete wall panels	East side of Roof F on pre-cast concrete wall panels around MPR	63	L1: None Detected
CG1023-A120	L1: Black rubbery sealant used on the seams of some metal building joint coping seams	Southeast corner of Roof F at intersection of Roofs G and I	64	L1: None Detected
CG0524-A01	Vinyl-covered gypsum wall board: L1: Beige vinyl-like covering L2: Off-white gypsum board	Above door on the northwest side of Book Room 44	146	L1: None Detected L2: None Detected
CG0524-A02	L1: (LCT1) Lay-in ceiling tile, 2’ x 4’ with false 2’ x 2’ appearance, beveled edges, and 1/16”-1/8” wide x 1/8”-1/2” oblong fissures and 1/16” holes, most common lay-in ceiling tile observed in building	Southeast side of Corridor 420 near entrance to Book Room 44	148	L1: None Detected
CG0524-A03	**L1: Dark grey putty used on the seams of the corrugated metal roof deck**	**Loose on top of lay-in ceiling tiles at the southeast side of Corridor 420 near entrance to Book Room 44**	**152**	**L1: 2.0% Chrysotile**
CG0524-A04	L1: White joint compound	Southeast side of Corridor 420 above the door to Book Room 44	149	L1: None Detected
CG0524-A05	L1: Brown wood fiber-like sound insulating board L2: Dark brown mastic used on the surface of the sound insulating board	Southeast side of Corridor 420 above the door to Book Room 44	149	L1: None Detected L2: None Detected
CG0524-A06	L1: Hard semi-pliable sealant used to adhere LCT1 from sample CG0524-02 to the metal ceiling grid	Southeast side of Corridor 420 near entrance to Book Room 44	155	L1: None Detected
CG0524-A07	L1: Semi-pliable light grey sealant used on the seams of the metal flashing on the top of the exterior precast concrete walls	South exterior of Vestibule 430	166	L1: None Detected

College Gate Elementary School, 3101 Sunflower Street, Anchorage, Alaska 99508				
SAMPLE NUMBER	**SAMPLE DESCRIPTION**	**SAMPLE LOCATION**	**PHOTO REFERENCE**	**SAMPLE RESULTS**
CG0524-A08	L1: Spongy light grey sealant used on the corner seams between the exterior precast concrete walls where there are changes in direction of the wall panels	South exterior of Vestibule 430	168	L1: None Detected
CG0524-A09	L1: Semi-pliable light grey sealant used between precast concrete wall panel seams on "runs" (i.e. not at the edges/where there are changes in direction)	South exterior of Classroom 43	169	L1: None Detected
CG0524-A10	L1: Dark grey-green "puck" mastic that appears to have been used to adhere the former gypsum board soffit to the remaining sound insulating board L2: Brown wood fiber-like sound insulating board	Southeast side of Corridor 410 on exposed sound insulating board above the lay-in ceiling	187	L1: None Detected L2: None Detected
CG0524-A11	L1: (DSS1) Hard slightly pliable grey-green sealant used on the seams of ductwork/HVAC systems in the building installed during the 1995 Additions and Renovations project	Southeast side of Corridor 410 on large supply air duct above the lay-in ceiling	186	L1: None Detected by PLM or TEM NOB
CG0524-A12	L1: (LCT1) Lay-in ceiling tile, 2' x 4' with false 2' x 2' appearance, beveled edges, and 1/16"-1/8" wide x 1/8"-1/2" oblong fissures and 1/16" holes, most common lay-in ceiling tile observed in building	West side of Classroom 42	208	L1: None Detected
CG0524-A13	L1: (LCT2) Lay-in ceiling tile, 2' x 4' with false 2' x 2' appearance, beveled edges, and textured surface, common lay-in tile observed in the administrative areas	West side of Workroom 53	255	L1: None Detected
CG0524-A14	L1: White joint compound	South wall of Workroom 53 above the lay-in ceiling	256	L1: None Detected
CG0524-A15	L1: White gypsum board	South wall of Workroom 53 above the lay-in ceiling	256	L1: None Detected
CG0524-A16	L1: (DSS2) Hard semi-pliable dark grey sealant used on the seams of some ductwork/HVAC systems in the building installed during the 2005 Mechanical Upgrades project	West side of Workroom 53 on ductwork above lay-in ceiling	257	L1: None Detected by PLM or TEM NOB

College Gate Elementary School, 3101 Sunflower Street, Anchorage, Alaska 99508				
SAMPLE NUMBER	**SAMPLE DESCRIPTION**	**SAMPLE LOCATION**	**PHOTO REFERENCE**	**SAMPLE RESULTS**
CG0524-A17	L1: (DSS1) Hard slightly pliable grey-green sealant used on the seams of ductwork/HVAC systems in the building installed during the 1995 Additions and Renovations project	West side of Workroom 53 smeared onto joist below the ductwork above the lay-in ceiling	258	L1: None Detected
CG0524-A18	L1: (LCT3) Lay-in ceiling tile, 2' x 4' with 1/8"-3/16" oblong holes and 1/16" holes, lay-in tile observed in Corridors 625, 650, and 750 and some vestibules	Southwest side of Corridor 625 near entrance to Library 61	273	L1: None Detected
CG0524-A19	L1: Dark brown mastic used between layers of vinyl-covered gypsum wall board L2: Green mastic used between layers of vinyl-covered gypsum wall board	Above the lay-in ceiling on the southwest side of Corridor 625 near entrance to Library 61	278	L1: None Detected L2: None Detected
CG0524-A20	Vinyl-covered gypsum wall board: L1: Beige vinyl-like covering L2: Off-white gypsum board	Above the lay-in ceiling on the southwest side of Corridor 625 near entrance to Library 61	278	L1: None Detected L2: None Detected
CG0524-A21	L1: (LCT3) Lay-in ceiling tile, 2' x 4' with 1/8"-3/16" oblong holes and 1/16" holes, lay-in tile observed in Corridors 625, 650, and 750 and some vestibules	Southeast side of Corridor 750 above doors	305	L1: None Detected
CG0524-A22	L1: (LCT1) Lay-in ceiling tile, 2' x 4' with false 2' x 2' appearance, beveled edges, and 1/16"-1/8" wide x 1/8"-1/2" oblong fissures and 1/16" holes, most common lay-in ceiling tile observed in building	Northeast side of Classroom 65	318	L1: None Detected
CG0524-A23	L1: Pliable tan mastic used to adhere lay-in ceiling grid perimeter "L" channels to substrates	Northwest side of Classroom 65 above lay-in ceiling on exterior wall	325	L1: None Detected
CG0524-A24	**L1: Hard dark brown mastic used to adhere lay-in ceiling grid perimeter "L" channels to substrates**	**Northwest side of Classroom 65 above lay-in ceiling on exterior wall**	**325**	**L1: <1.0% Chrysotile by PLM, 5.0% Chrysotile by TEM NOB**
CG0524-A25	L1: (LCT4) Lay-in ceiling tile, 2' x 4' with 1/8"-3/16" wide x 1/4"-1/2" fissures and 1/64"-1/16" holes, lay-in tile observed in Vestibule 67A	North side of Vestibule 67A	342	L1: None Detected
CG0524-A26	**L1: Hard brittle/crispy brown-orange "puck" mastic used to adhere smooth-faced hardwood paneling to underlying rigid green foam insulation**	**East wall of Boiler Room 74 next to door**	**387**	**L1: <1.0% Chrysotile by PLM, 0.2% Chrysotile by TEM NOB**

College Gate Elementary School, 3101 Sunflower Street, Anchorage, Alaska 99508				
SAMPLE NUMBER	**SAMPLE DESCRIPTION**	**SAMPLE LOCATION**	**PHOTO REFERENCE**	**SAMPLE RESULTS**
CG0524-A27	**L1: Hard brittle/crispy dark grey "puck" mastic used to adhere rigid green foam insulation to underlying precast concrete wall panel substrate**	**East wall of Boiler Room 74 next to door**	**388**	**L1: <1.0% Chrysotile by PLM, <0.25% Chrysotile by TEM NOB**
CG0524-A28	**L1: Dark grey putty used on the seams of the corrugated metal roof deck**	**South side of Boiler Room 74 next to roof hatch**	**395**	**L1: 10% Chrysotile**
CG0524-A29	L1: Light beige cementitious mortar-like coating on precast concrete wall panel	Northwest side of Boiler Room 74	385	L1: None Detected
CG0524-A30	L1: Grey concrete from the precast concrete wall panels L2: Black high-density foam backer rod L3: Light grey sealant used between precast concrete wall panel seams on "runs" (i.e. not at the edges/where there are changes in direction)	Northwest side of Boiler Room 74	386	L1: None Detected L2: None Detected L3: None Detected
CG0524-A31	L1: (LCT5) Lay-in ceiling tile, 2' x 4' fiberglass lay-in tile with vinyl-like facing, observed in the Kitchen	North side of Kitchen 68A above door	405	L1: None Detected
CG0524-A32	L1: (LCT1) Lay-in ceiling tile, 2' x 4' with false 2' x 2' appearance, beveled edges, and 1/16"-1/8" wide x 1/8"-1/2" oblong fissures and 1/16" holes, most common lay-in ceiling tile observed in building	Southeast side of Classroom 37	430	L1: None Detected
CG0524-A33	L1: White joint compound	Southeast side of Classroom 37 on south wall above lay-in ceiling	429	L1: None Detected
CG0524-A34	L1: Remnant beige material on 90 degree elbow on VTR piping	Southeast side of Classroom 37 on VTR piping above lay-in ceiling	427	L1: None Detected
CG0524-A35	L1: Dark grey penetration putty used at conduit penetration thru sheet metal duct	On relief air duct above the lay-in ceiling in Corridor 300 near the entrance to Fan Room 38	443	L1: None Detected
CG0524-A36	L1: Brown crispy/brittle "puck" mastic remnant	Exposed above the door on the east wall of Fan Room 38	444	L1: None Detected
CG0524-A37	L1: Clear/green silicone-like sealant used on seams of the sheet metal roof of the "Raven House"	Southwest side of roof	497	L1: None Detected
CG0524-A38	L1: Dark grey compound used between the stained glass windows and wood retainers on the "Raven House"	South side of the structure	499	L1: None Detected by PLM or TEM NOB
CG0524-A39	L1: Hard but flexible panel with white chalky surface and clear interior	South side of the roof	498	L1: None Detected

Appendix A.1 – Table of Asbestos Samples

College Gate Elementary School, 3101 Sunflower Street, Anchorage, Alaska 99508				
SAMPLE NUMBER	**SAMPLE DESCRIPTION**	**SAMPLE LOCATION**	**PHOTO REFERENCE**	**SAMPLE RESULTS**
CG0524-A40	L1: Hard brittle/crispy dark grey-brown "puck" mastic used to adhere rigid green foam insulation to underlying precast concrete wall panel substrate	Northeast side of Corridor 220 above lay-in ceiling	505	L1: None Detected
CG0524-A41	L1: Beige manufactured hardboard with off-white interior used on exterior fascia and soffit panels	South exterior of Vestibule 710 at damaged area of fascia panel	566	L1: None Detected by PLM or TEM NOB
CG0524-A42	L1: (LCT6) Lay-in ceiling tile, 2' x 4' with false 2' x 2' appearance, beveled edges, and 1/16" wide x 1/8"-1/4" densely packed fissures and densely packed 1/16" holes, common lay-in tile in Corridor 675 and as a replacement tile scattered throughout the school	Southwest side of Corridor 675 above the double doors	571	L1: None Detected
CG0524-A43	L1: (LCT7) Lay-in ceiling tile, 2' x 4' with false 2' x 2' appearance, beveled edges, and 1/8"-3/16" oblong holes and 1/16"-1/8" holes, common in corridors and vestibules surrounding the administrative area and as a replacement tile scattered throughout the school	Northwest side of Corridor 675	572	L1: None Detected
CG0524-A44	L1: (LCT7) Lay-in ceiling tile, 2' x 4' with false 2' x 2' appearance, beveled edges, and 1/8"-3/16" oblong holes and 1/16"-1/8" holes, common in corridors and vestibules surrounding the administrative area and as a replacement tile scattered throughout the school	Near center of Corridor 320	573	L1: None Detected
CG0524-A45	L1: (LCT6) Lay-in ceiling tile, 2' x 4' with false 2' x 2' appearance, beveled edges, and 1/16" wide x 1/8"-1/4" densely packed fissures and densely packed 1/16" holes, common lay-in tile in Corridor 675 and as a replacement tile scattered throughout the school	North side of Corridor 220	574	L1: None Detected

College Gate Elementary School, 3101 Sunflower Street, Anchorage, Alaska 99508				
SAMPLE NUMBER	**SAMPLE DESCRIPTION**	**SAMPLE LOCATION**	**PHOTO REFERENCE**	**SAMPLE RESULTS**
CG0524-A46	L1: (LCT6) Lay-in ceiling tile, 2' x 4' with false 2' x 2' appearance, beveled edges, and 1/16" wide x 1/8"-1/4" densely packed fissures and densely packed 1/16" holes, common lay-in tile in Corridor 675 and as a replacement tile scattered throughout the school	North side of Corridor 200	575	L1: None Detected
CG0524-A47	L1: (LCT7) Lay-in ceiling tile, 2' x 4' with false 2' x 2' appearance, beveled edges, and 1/8"-3/16" oblong holes and 1/16"-1/8" holes, common in corridors and vestibules surrounding the administrative area and as a replacement tile scattered throughout the school	West side of Vestibule 610	576	L1: None Detected
CG0524-A48	L1: White joint compound	Northeast side of Central Storage 66 from above ceiling at fire sprinkler penetration	594	L1: None Detected
CG0524-A49	L1: White gypsum board	Northeast side of Central Storage 66 from above ceiling at fire sprinkler penetration	594	L1: None Detected
CG0524-A50	L1: (LCT1) Lay-in ceiling tile, 2' x 4' with false 2' x 2' appearance, beveled edges, and 1/16"-1/8" wide x 1/8"-1/2" oblong fissures and 1/16" holes, most common lay-in ceiling tile observed in building	Near center of Corridor 720	595	L1: None Detected
CG0524-A51	L1: White joint compound	Southeast corner of Electrical Room 73	627	L1: None Detected
CG0524-A52	L1: White gypsum board	At hole in east wall above door in Mechanical 72	629	L1: None Detected
CG0524-A53	L1: White joint compound	East wall of Classroom 16 above the lay-in ceiling	641	L1: None Detected
CG0524-A54	L1: White gypsum board	East wall of Classroom 16 above the lay-in ceiling	641	L1: None Detected
CG0524-A55	L1: (LCT1) Lay-in ceiling tile, 2' x 4' with false 2' x 2' appearance, beveled edges, and 1/16"-1/8" wide x 1/8"-1/2" oblong fissures and 1/16" holes, most common lay-in ceiling tile observed in building	East side of Classroom 16 near the double doors	642	L1: None Detected

Appendix A.1 – Table of Asbestos Samples

College Gate Elementary School, 3101 Sunflower Street, Anchorage, Alaska 99508				
SAMPLE NUMBER	**SAMPLE DESCRIPTION**	**SAMPLE LOCATION**	**PHOTO REFERENCE**	**SAMPLE RESULTS**
CG0524-A56	L1: White joint compound	West side of Classroom 15 at water damaged area of gypsum board above the lay-in ceiling	645	L1: None Detected
CG0524-A57	L1: White gypsum board	West side of Classroom 15 at water damaged area of gypsum board above the lay-in ceiling	645	L1: None Detected
CG0524-A58	L1: (LCT2) Lay-in ceiling tile, 2' x 4' with false 2' x 2' appearance, beveled edges, and textured surface, common lay-in tile observed in the administrative areas (this tile was the only "outlier" observed)	West side of Classroom 15	649	L1: None Detected
CG0524-A59	L1: (DSS1) Hard slightly pliable grey-green sealant used on the seams of ductwork/HVAC systems in the building installed during the 1995 Additions and Renovations project	East side of Classroom 15 on the bottom of the relief air duct	655	L1: None Detected
CG0524-A60	L1: White joint compound	South wall of C102 at rain leader pipe penetration thru gypsum board wall	666	L1: None Detected
CG0524-A61	L1: White gypsum board	South wall of C102 at rain leader pipe penetration thru gypsum board wall	666	L1: None Detected
CG0524-A62	L1: (LCT1) Lay-in ceiling tile, 2' x 4' with false 2' x 2' appearance, beveled edges, and 1/16"-1/8" wide x 1/8"-1/2" oblong fissures and 1/16" holes, most common lay-in ceiling tile observed in building	South side of C102 at water damaged lay-in tile	664	L1: None Detected
CG0524-A63	L1: Dark grey-green "puck" mastic that appears to have been used to adhere the former gypsum board soffit to the remaining sound insulating board L2: Brown wood fiber-like sound insulating board	North side of Corridor 310 on exposed sound insulating board above the lay-in ceiling	470	L1: None Detected by PLM or TEM NOB L2: None Detected
CG0524-A64	L1: (DSS3) Hard tan sealant used between the duct flanges and heating coils in the original construction	Near center of Corridor 410 above lay-in ceiling	677	L1: None Detected
CG0524-A65	L1: Yellow semi-pliable mastic used to adhere fiberglass insulation to the outside of ductwork from the original construction	Northwest side of Fan Room 63A at air intake duct near roof deck	688	L1: None Detected

HAZARDOUS MATERIALS ASSESSMENT

College Gate Elementary School, 3101 Sunflower Street, Anchorage, Alaska 99508				
SAMPLE NUMBER	**SAMPLE DESCRIPTION**	**SAMPLE LOCATION**	**PHOTO REFERENCE**	**SAMPLE RESULTS**
CG0524-A66	L1: (DSS2) Hard semi-pliable dark grey sealant used on the seams of some ductwork/HVAC systems in the building installed during the 2005 Mechanical Upgrades project	Southwest side of Fan Room 63A at return air duct connection to older ductwork	689	L1: None Detected
CG0724-A01	**L1: Grey exterior cement board fascia**	**West exterior of Classroom 46**	**696**	**L1: 20% Chrysotile**
CG0724-A02	**L1: Grey exterior cement board fascia**	**South exterior of Library 61**	**710**	**L1: 20% Chrysotile**
CG0724-A03	**L1: Off-white to cream-colored mastic used between the gypsum board studs and the wood fiber sound deadening board**	**East side of Corridor 550 at cutout in vinyl gypsum board partition**	**722**	**L1: 3.7% Chrysotile**
CG0724-A04	L1: Mastic between layers of gypsum board studs Note, the laboratory reported that there was no discernable mastic in the sample and instead analyzed and reported the gypsum board which was in the sample	East side of Corridor 550 at cutout in vinyl gypsum board partition	732	L1: None Detected
CG0724-A05	L1: Ceiling tile material with hard dark grey matrix	Loose on top of gypsum board ceiling in Toilet 53B	736	L1: None Detected
CG0724-A06	L1: Dark grey semi-pliable mastic used on the seams of older bathroom exhaust fans	Of exhaust duct above the gypsum board ceiling in Toilet 53B	743	L1: None Detected

Notes to Table of Asbestos Samples:

- "L1", "L2", "L3" designations indicate "Layer 1", "Layer 2", "Layer 3", etc. found in the individual samples. Materials shown in bold font are materials which were found to contain asbestos by laboratory analysis.

Sample data from previous sampling events is not included in this limited report. Refer to records available from the Anchorage School District.

HAZARDOUS MATERIALS ASSESSMENT

Appendix A.2 – Final Laboratory Certificate of Analysis & Chain of Custody

Appendix A.2 – Final Laboratory Certificate of Analysis & Chain of Custody

HTRW, LLC

CHAIN OF CUSTODY

11471 Business Blvd., #773442
Eagle River, Alaska 99577
(907)-917-3801

Project Number	*2023-13*					**Selected Laboratory**	*iATL*
Project Name	*Anchorage School District RFP 2023-619 Design Services: College Gate Elementary School Roof Replacement*					**Shipping Method**	*FedEx, 7736 6014 3220*
Address/Location	*3101 Sunflower Street, Anchorage, Alaska 99508*					**Date and Time**	*10/06/2023, 10:30 AM*
Client	*RIM Architects, LLC*					**Samples Received By**	
Inspector/Collected By	*Christopher T. Ottosen*					**Date and Time**	
EPA B.I.# and State	*TBI4-123-17473/Alaska*					**Analyst Signature(s)**	MZ- 10/16/23
Collection Date	*10/03-04/2023*	**Quantity**	*120*	**Turnaround**	*10-Day*		
Requested Analysis	*Asbestos Bulk by PLM, EPA Method 600, R93-116*						
Special Notes	*E-mail results to cottosen@htrw-llc.com. Provide a scanned color copy of this chain of custody or return the original hard copies. Do not analyze wood, paint, or foam or perform composite analysis of gypsum wall board and joint compound unless specifically asked for in the sample description.*						

SAMPLE NUMBER	SAMPLE DESCRIPTION	SAMPLE LOCATION	PHOTO REFERENCE	LAB SAMPLE ID
CG1023-A01	L1: Light grey chalky sealant used between the EPDM roofing membrane and the VTR L2: Black sealant used between the EPDM roofing membrane and the VTR	North side of Roof D at VTR penetration	01	7681353
CG1023-A02	L1: White sealant used between the metal electrical shut-off enclosure and the EPDM roofing membrane	North side of Roof D on east exhaust fan	02	7681354
CG1023-A03	L1: Light grey rubbery sealant used as a "patch" sealant on some of the metal parapet cap seams	Northwest side of Roof D at corner of parapet bend from the southwest corner of roof C	03	7681355
CG1023-A04	L1: Black sealant used on the screwheads fastening the conduit "c" clips to the EDPM-covered sidewall	West side of Roof D towards the northern end of the sidewall	04	7681356
CG1023-A05	L1: Black sealant used on the seams of the EPDM roofing membrane	West side of Roof D towards the northern end of the sidewall	05	7681357
CG1023-A06	L1: Grey rubbery sealant used between an EPDM patch and the sheet metal base of an exhaust fan	Southeast side of Roof C on exhaust fan	06	7681358
CG1023-A07	L1: Black sealant used between the EPDM roofing membrane and a metal conduit	Southeast side of Roof C at conduit penetration	07	7681359
CG1023-A08	L1: White sealant that appears to have been used to adhere the foam expansion joint material to the EPDM-covered sidewall	North side of Roof C towards the eastern side of the sidewall	08	7681360

Page 1 of 7

2023-13-PLM-COC-23-10-03

HTRW, LLC

CHAIN OF CUSTODY

11471 Business Blvd., #773442
Eagle River, Alaska 99577
(907)-917-3801

Project Number	*2023-13*			**Selected Laboratory**	*iATL*
Project Name	*Anchorage School District RFP 2023-619 Design Services: College Gate Elementary School Roof Replacement*			**Shipping Method**	*FedEx, 7736 6014 3220*
Address/Location	*3101 Sunflower Street, Anchorage, Alaska 99508*			**Date and Time**	*10/06/2023, 10:30 AM*
Client	*RIM Architects, LLC*			**Samples Received By**	
Inspector/Collected By	*Christopher T. Ottosen*			**Date and Time**	
EPA B.I.# and State	*TBI4-123-17473/Alaska*			**Analyst Signature(s)**	10/16/23
Collection Date	*10/03-04/2023*	**Quantity** *120*	**Turnaround** *10-Day*		
Requested Analysis	*Asbestos Bulk by PLM, EPA Method 600, R93-116*				
Special Notes	*E-mail results to cottosen@htrw-llc.com. Provide a scanned color copy of this chain of custody or return the original hard copies. Do not analyze wood, paint, or foam or perform composite analysis of gypsum wall board and joint compound unless specifically asked for in the sample description.*				

SAMPLE NUMBER	SAMPLE DESCRIPTION	SAMPLE LOCATION	PHOTO REFERENCE	LAB SAMPLE ID
CG1023-A01	L1: Light grey chalky sealant used between the EPDM roofing membrane and the VTR L2: Black sealant used between the EPDM roofing membrane and the VTR	North side of Roof D at VTR penetration	01	7681353
CG1023-A02	L1: White sealant used between the metal electrical shut-off enclosure and the EPDM roofing membrane	North side of Roof D on east exhaust fan	02	7681354
CG1023-A03	L1: Light grey rubbery sealant used as a "patch" sealant on some of the metal parapet cap seams	Northwest side of Roof D at corner of parapet bend from the southwest corner of roof C	03	7681355
CG1023-A04	L1: Black sealant used on the screwheads fastening the conduit "c" clips to the EDPM-covered sidewall	West side of Roof D towards the northern end of the sidewall	04	7681356
CG1023-A05	L1: Black sealant used on the seams of the EPDM roofing membrane	West side of Roof D towards the northern end of the sidewall	05	7681357
CG1023-A06	L1: Grey rubbery sealant used between an EPDM patch and the sheet metal base of an exhaust fan	Southeast side of Roof C on exhaust fan	06	7681358
CG1023-A07	L1: Black sealant used between the EPDM roofing membrane and a metal conduit	Southeast side of Roof C at conduit penetration	07	7681359
CG1023-A08	L1: White sealant that appears to have been used to adhere the foam expansion joint material to the EPDM-covered sidewall	North side of Roof C towards the eastern side of the sidewall	08	7681360

Page 1 of 7

2023-13-PLM-COC-23-10-03

HTRW, LLC

CHAIN OF CUSTODY

11471 Business Blvd., #773442
Eagle River, Alaska 99577
(907)-917-3801

Project Number	*2023-13*				**Selected Laboratory**	*iATL*	
Project Name	*Anchorage School District RFP 2023-619 Design Services: College Gate Elementary School Roof Replacement*				**Shipping Method**	*FedEx, 7736 6014 3220*	
Address/Location	*3101 Sunflower Street, Anchorage, Alaska 99508*				**Date and Time**	*10/06/2023, 10:30 AM*	
Client	*RIM Architects, LLC*				**Samples Received By**	RECEIVED	
Inspector/Collected By	*Christopher T. Ottosen*				**Date and Time**	10/12/23	
EPA B.I.# and State	*TBI4-123-17473/Alaska*				**Analyst Signature(s)**		
Collection Date	*10/03-04/2023*	**Quantity**	*120*	**Turnaround** *10-Day*		OCT -9 2023	
Requested Analysis	*Asbestos Bulk by PLM, EPA Method 600, R93-116*						
Special Notes	*E-mail results to cottosen@htrw-llc.com. Provide a scanned color copy of this chain of custody or return the original hard copies. Do not analyze wood, paint, or foam or perform composite analysis of gypsum wall board and joint compound unless specifically asked for in the sample description.*						

SAMPLE NUMBER	SAMPLE DESCRIPTION	SAMPLE LOCATION	PHOTO REFERENCE	LAB SAMPLE ID
CG1023-A01	L1: Light grey chalky sealant used between the EPDM roofing membrane and the VTR L2: Black sealant used between the EPDM roofing membrane and the VTR	North side of Roof D at VTR penetration	01	7681353
CG1023-A02	L1: White sealant used between the metal electrical shut-off enclosure and the EPDM roofing membrane	North side of Roof D on east exhaust fan	02	7681354
CG1023-A03	L1: Light grey rubbery sealant used as a "patch" sealant on some of the metal parapet cap seams	Northwest side of Roof D at corner of parapet bend from the southwest corner of roof C	03	7681355
CG1023-A04	L1: Black sealant used on the screwheads fastening the conduit "c" clips to the EDPM-covered sidewall	West side of Roof D towards the northern end of the sidewall	04	7681356
CG1023-A05	L1: Black sealant used on the seams of the EPDM roofing membrane	West side of Roof D towards the northern end of the sidewall	05	7681357
CG1023-A06	L1: Grey rubbery sealant used between an EPDM patch and the sheet metal base of an exhaust fan	Southeast side of Roof C on exhaust fan	06	7681358
CG1023-A07	L1: Black sealant used between the EPDM roofing membrane and a metal conduit	Southeast side of Roof C at conduit penetration	07	7681359
CG1023-A08	L1: White sealant that appears to have been used to adhere the foam expansion joint material to the EPDM-covered sidewall	North side of Roof C towards the eastern side of the sidewall	08	7681360

Page 1 of 7

2023-13-PLM-COC-23-10-03

HTRW, LLC

CHAIN OF CUSTODY

11471 Business Blvd., #773442
Eagle River, Alaska 99577
(907)-917-3801

SAMPLE NUMBER	SAMPLE DESCRIPTION	SAMPLE LOCATION	PHOTO REFERENCE	LAB SAMPLE ID
CG1023-A09	L1: Black sealant used on the seams of the EPDM roofing membrane	North side of Roof C near the center of the sidewall	09	7681361
CG1023-A10	L1: Black sealant used between the EPDM roofing membrane and sheet metal vent pipe	West side of Roof C at southern sheet metal vent pipe penetration	10	7681362
CG1023-A11	L1: Grey cementitious roofing ballast paver	From Roof Core 01 on south side of Roof D	11	7681363
CG1023-A12	L1: Black filter fabric	From Roof Core 01 on south side of Roof D	12	7681364
CG1023-A13	L1: Black EPDM roofing membrane	From Roof Core 01 on south side of Roof D	13	7681365
CG1023-A14	L1: Brown paper slip sheet	From Roof Core 01 on south side of Roof D	14	7681366
CG1023-A15	L1: White "DensDeck" sheathing	From Roof Core 01 on south side of Roof D	15	7681367
CG1023-A16	L1: Black crispy hot-mop tar adhered to corrugated metal roof deck	From Roof Core 01 on south side of Roof D	15	7681368
CG1023-A17	L1: Grey cementitious roofing ballast paver	From Roof Core 02 on northeast side of Roof C	18	7681369
CG1023-A18	L1: Black filter fabric	From Roof Core 02 on northeast side of Roof C	19	7681370
CG1023-A19	L1: Black EPDM roofing membrane	From Roof Core 02 on northeast side of Roof C	20	7681371
CG1023-A20	L1: White "DensDeck" sheathing	From Roof Core 02 on northeast side of Roof C	21	7681372
CG1023-A21	L1: Black crispy hot-mop tar adhered to corrugated metal roof deck L2: Tan "Kraft" paper vapor barrier	From Roof Core 02 on northeast side of Roof C	22	7681373
CG1023-A22	L1: Black sealant used on the seams of the EPDM roofing membrane	Northeast corner of Roof B	23	7681374
CG1023-A23	L1: White sealant that appears to have been used to adhere the foam expansion joint material to the EPDM-covered sidewall	East side of Roof B towards the northern end of the sidewall	24	7681375
CG1023-A24	L1: Black sealant used between the EPDM roofing membrane and the VTR	Southeast side of Roof B at VTR penetration	25	7681376
CG1023-A25	L1: Black sealant used on the seams of the EPDM roofing membrane	Northwest corner of Roof B	26	7681377
CG1023-A26	L1: Grey cementitious roofing ballast paver	From Roof Core 03 on northwest side of Roof B	27	7681378
CG1023-A27	L1: Black filter fabric	From Roof Core 03 on northwest side of Roof B	28	7681379
CG1023-A28	L1: Black EPDM roofing membrane	From Roof Core 03 on northwest side of Roof B	29	7681380
CG1023-A29	L1: Brown paper slip sheet	From Roof Core 03 on northwest side of Roof B	30	7681381

Page 2 of 7

2023-13-PLM-COC-23-10-03

HTRW, LLC

CHAIN OF CUSTODY

11471 Business Blvd., #773442
Eagle River, Alaska 99577
(907)-917-3801

SAMPLE NUMBER	SAMPLE DESCRIPTION	SAMPLE LOCATION	PHOTO REFERENCE	LAB SAMPLE ID
CG1023-A30	L1: White "DensDeck" sheathing	From Roof Core 03 on northwest side of Roof B	31	7681382
CG1023-A31	L1: Black crispy hot-mop tar adhered to corrugated metal roof deck	From Roof Core 03 on northwest side of Roof B	31	7681383
CG1023-A32	L1: Grey gum-like material adhered to roofing ballast paver	Near antenna on southwest-center of Roof C	32	7681384
CG1023-A33	L1: White textured surface of EIFS	Northwest side of Roof A from fascia	33	7681385
CG1023-A34	L1: Black sealant used between the EPDM roofing membrane and sheet metal vent	West side of Roof A from sheet metal vent	34	7681386
CG1023-A35	L1: Light grey chalky sealant used between the EPDM roofing membrane and the VTR L2: Black sealant used between the EPDM roofing membrane and the VTR	Near center of Roof A at short VTR penetration	35	7681387
CG1023-A36	L1: Grey cementitious roofing ballast paver	From Roof Core 04 on east side of Roof A	37	7681388
CG1023-A37	L1: Black EPDM roofing membrane	From Roof Core 04 on east side of Roof A	38	7681389
CG1023-A38	L1: White "DensDeck" sheathing	From Roof Core 04 on east side of Roof A	39	7681390
CG1023-A39	L1: Black sealant used on the seams of the EPDM roofing membrane	On horizontal seam of EPDM next to Roof Core 04 on east side of Roof A	36	7681391
CG1023-A40	L1: Sticky, gummy-like grey sealant used inside of roof drain bowls at the clamping rings	Inside of roof drain bowl next to Roof Core 04 on east side of Roof A	41	7681392
CG1023-A41	L1: Black sealant used on the seams of the EPDM roofing membrane	From horizontal seam of EPDM at base of sidewall on the north side of Roof E	44	7681393
CG1023-A42	L1: Black sealant used on the seams of the EPDM roofing membrane	From vertical seam of EPDM on sidewall on the north side of Roof E	44	7681394
CG1023-A43	L1: Grey cementitious roofing ballast paver	From Roof Core 05 on the north side of Roof E	46	7681395
CG1023-A44	L1: Black filter fabric	From Roof Core 05 on the north side of Roof E	47	7681396
CG1023-A45	L1: Black EPDM roofing membrane	From Roof Core 05 on the north side of Roof E	48	7681397
CG1023-A46	L1: Brown paper slip sheet	From Roof Core 05 on the north side of Roof E	49	7681398
CG1023-A47	L1: White "DensDeck" sheathing	From Roof Core 05 on the north side of Roof E	50	7681399
CG1023-A48	L1: Black crispy hot-mop tar adhered to corrugated metal roof deck L2: Tan "Kraft" paper vapor barrier	From Roof Core 05 on the north side of Roof E	50	7681400
CG1023-A49	L1: Black sealant used between the EPDM roofing membrane and the VTR	From VTR penetration near the center of Roof E	52	7681401

HTRW, LLC

CHAIN OF CUSTODY

11471 Business Blvd., #773442
Eagle River, Alaska 99577
(907)-917-3801

SAMPLE NUMBER	SAMPLE DESCRIPTION	SAMPLE LOCATION	PHOTO REFERENCE	LAB SAMPLE ID
CG1023-A50	L1: Light grey gum-like material of unknown purpose	At base of VTR penetration near the center of Roof E	53	7681402
CG1023-A51	L1: Black sealant used on the seams of the EPDM roofing membrane	From horizontal seam of EPDM at base of sidewall on the west side of Roof E	56	7681403
CG1023-A52	L1: Black sealant used on the seams of the EPDM roofing membrane	From vertical seam of EPDM on sidewall on the west side of Roof E	57	7681404
CG1023-A53	L1: Sticky, gummy-like grey sealant used inside of roof drain bowls at the clamping rings	Inside of Roof Drain bowl on west side of Roof E	59	7681405
CG1023-A54	L1: Light grey chalky sealant used between the metal EPDM roofing membrane retainer strip and the pre-cast concrete wall panel	Southeast corner of Roof E	61	7681406
CG1023-A55	L1: Grey spongy and sticky sealant used on the seams of the pre-cast concrete wall panels	South side of Roof E on walls around MPR	60	7681407
CG1023-A56	L1: Grey cementitious roofing ballast paver	From Roof Core 06 near center of Roof E	67	7681408
CG1023-A57	L1: Black filter fabric	From Roof Core 06 near center of Roof E	68	7681409
CG1023-A58	L1: Black EPDM roofing membrane	From Roof Core 06 near center of Roof E	69	7681410
CG1023-A59	L1: White "DensDeck" sheathing	From Roof Core 06 near center of Roof E	70	7681411
CG1023-A60	L1: Black crispy hot-mop tar adhered to corrugated metal roof deck L2: Tan "Kraft" paper vapor barrier	From Roof Core 06 near center of Roof E	71	7681412
CG1023-A61	L1: Hard white sealant used between the metal boiler flue and metal collar	From northern boiler flue on Roof M	73	7681413
CG1023-A62	L1: Red-orange rubbery sealant remnant on the outside circumference of the metal boiler flue	From southern boiler flue on Roof M	74	7681414
CG1023-A63	L1: Grey rubbery sealant used between the metal boiler flue and metal collar	From southern boiler flue on Roof M	75	7681415
CG1023-A64	L1: Crispy black tar smeared on the top of the roof hatch	South side of Roof M	76	7681416
CG1023-A65	L1: Black tarry felt paper	Southwest corner of Roof M wedged between the EIFS siding and the pre-cast concrete wall panel	77	7681417
CG1023-A66	L1: White rubbery sealant used between the metal drip edge and metal coping	Southwest corner of Roof M	78	7681418
CG1023-A67	L1: Light grey textured surface of EIFS	Southeast corner of Roof M at hole in EIFS siding	79	7681419
CG1023-A68	L1: Black roof mastic remnant	From mechanical hood on west side of Roof G	80	7681420

HTRW, LLC

CHAIN OF CUSTODY

11471 Business Blvd., #773442
Eagle River, Alaska 99577
(907)-917-3801

SAMPLE NUMBER	SAMPLE DESCRIPTION	SAMPLE LOCATION	PHOTO REFERENCE	LAB SAMPLE ID
CG1023-A69	L1: Black sealant used on the seams of the EPDM roofing membrane	West side of Roof J near center of sidewall	82	7681421
CG1023-A70	L1: White sealant used to adhere the foam expansion joint material to the EPDM-covered mechanical curb	Southwest side of Roof J on sheet metal vent	83	7681422
CG1023-A71	L1: Light grey textured surface of EIFS	At damaged area of EIFS siding on west side of Roof K, collected from Roof J level	84	7681423
CG1023-A72	L1: Light grey sealant used as a "patch" sealant on some drip edge seams	South side of Roof J on western end of wall around Gym	85	7681424
CG1023-A73	L1: Light grey textured surface of EIFS	At bottom of EIFS siding behind ladder on south side of Roof J	86	7681425
CG1023-A74	L1: Sticky, gummy-like grey sealant used inside of roof drain bowls at the clamping rings	Inside of roof drain bowl on the southeast side of Roof J	88	7681426
CG1023-A75	L1: Black sealant used between the EPDM roofing membrane and the VTR	Southeast side of Roof J at VTR penetration	89	7681427
CG1023-A76	L1: Black sealant used on the seams of the EPDM roofing membrane	East side of Roof J from southern end of sidewall	90	7681428
CG1023-A77	L1: Grey cementitious roofing ballast paver	From Roof Core 08 on north side of Roof F	93	7681429
CG1023-A78	L1: Black filter fabric	From Roof Core 08 on north side of Roof F	94	7681430
CG1023-A79	L1: Black EPDM roofing membrane	From Roof Core 08 on north side of Roof F	95	7681431
CG1023-A80	L1: Brown paper slip sheet	From Roof Core 08 on north side of Roof F	96	7681432
CG1023-A81	L1: White "DensDeck" sheathing	From Roof Core 08 on north side of Roof F	97	7681433
CG1023-A82	L1: Black crispy hot-mop tar adhered to corrugated metal roof deck L2: Tan "Kraft" paper vapor barrier	From Roof Core 08 on north side of Roof F	98	7681434
CG1023-A83	L1: Grey cementitious roofing ballast paver	From Roof Core 09 on southwest side of Roof C	100	7681435
CG1023-A84	L1: Black filter fabric	From Roof Core 09 on southwest side of Roof C	101	7681436
CG1023-A85	L1: Black EPDM roofing membrane	From Roof Core 09 on southwest side of Roof C	102	7681437
CG1023-A86	L1: Brown paper slip sheet	From Roof Core 09 on southwest side of Roof C	103	7681438
CG1023-A87	L1: White "DensDeck" sheathing	From Roof Core 09 on southwest side of Roof C	104	7681439
CG1023-A88	L1: Black crispy hot-mop tar adhered to corrugated metal roof deck	From Roof Core 09 on southwest side of Roof C	105	7681440
CG1023-A89	L1: Grey cementitious roofing ballast paver	From Roof Core 10 on south side of Roof J	None	7681441

Page 5 of 7

2023-13-PLM-COC-23-10-03

HTRW, LLC

CHAIN OF CUSTODY

11471 Business Blvd., #773442
Eagle River, Alaska 99577
(907)-917-3801

SAMPLE NUMBER	SAMPLE DESCRIPTION	SAMPLE LOCATION	PHOTO REFERENCE	LAB SAMPLE ID
CG1023-A90	L1: Black plastic separator sheet	From Roof Core 10 on south side of Roof J	None	7681442
CG1023-A91	L1: Black EPDM roofing membrane	From Roof Core 10 on south side of Roof J	None	7681443
CG1023-A92	L1: White "DensDeck" sheathing	From Roof Core 10 on south side of Roof J	None	7681444
CG1023-A93	L1: Black sealant used on the seams of the EPDM roofing membrane	West side of Roof K near center of sidewall	106	7681445
CG1023-A94	L1: Black sealant used to adhere the foam expansion joint material to the EPDM-covered sidewall	West side of Roof K near center of sidewall	107	7681446
CG1023-A95	L1: Light grey sealant used as a "patch" sealant on some seams of the EPDM-covered sidewall	North side of Roof K near center of sidewall	108	7681447
CG1023-A96	L1: Grey cementitious roofing ballast paver	From Roof Core 11 on north side of Roof K	110	7681448
CG1023-A97	L1: Black plastic separator sheet	From Roof Core 11 on north side of Roof K	111	7681449
CG1023-A98	L1: Black EPDM roofing membrane	From Roof Core 11 on north side of Roof K	112	7681450
CG1023-A99	L1: White "DensDeck" sheathing	From Roof Core 11 on north side of Roof K	113	7681451
CG1023-A100	L1: Grey cementitious roofing ballast paver	From Roof Core 12 on south side of Roof G	115	7681452
CG1023-A101	L1: Black filter fabric	From Roof Core 12 on south side of Roof G	116	7681453
CG1023-A102	L1: Black EPDM roofing membrane	From Roof Core 12 on south side of Roof G	117	7681454
CG1023-A103	L1: Brown paper slip sheet	From Roof Core 12 on south side of Roof G	114	7681455
CG1023-A104	L1: White "DensDeck" sheathing	From Roof Core 12 on south side of Roof G	118	7681456
CG1023-A105	L1: Grey cementitious roofing ballast paver	From Roof Core 13 on north side of Roof G	120	7681457
CG1023-A106	L1: Black filter fabric	From Roof Core 13 on north side of Roof G	121	7681458
CG1023-A107	L1: Black EPDM roofing membrane	From Roof Core 13 on north side of Roof G	122	7681459
CG1023-A108	L1: White "DensDeck" sheathing	From Roof Core 13 on north side of Roof G	123	7681460
CG1023-A109	L1: Black sealant used on the seams of the metal coping on the perimeters of Roof G	North side of Roof G near center of coping	124	7681461
CG1023-A110	L1: Grey cementitious roofing ballast paver	From Roof Core 14 on northeast side of Roof M	127	7681462
CG1023-A111	L1: Black filter fabric	From Roof Core 14 on northeast side of Roof M	128	7681463
CG1023-A112	L1: Black EPDM roofing membrane	From Roof Core 14 on northeast side of Roof M	129	7681464
CG1023-A113	L1: White "DensDeck" sheathing	From Roof Core 14 on northeast side of Roof M	130	7681465

HTRW, LLC

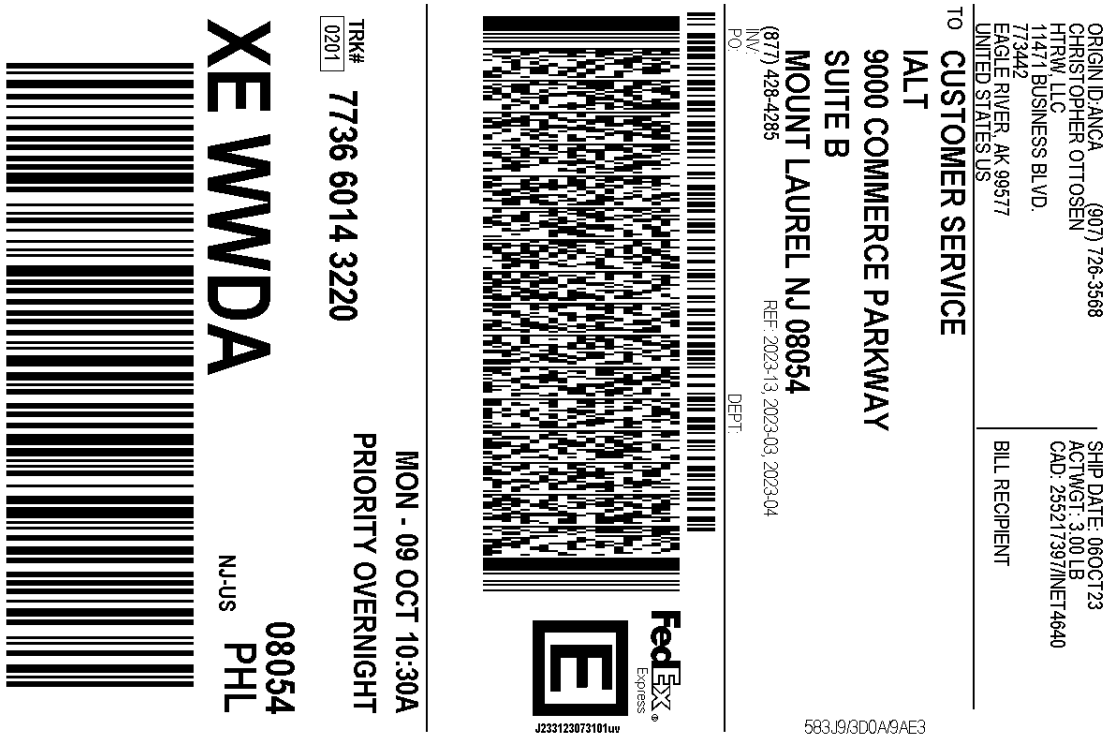
CHAIN OF CUSTODY

11471 Business Blvd., #773442
Eagle River, Alaska 99577
(907)-917-3801

SAMPLE NUMBER	SAMPLE DESCRIPTION	SAMPLE LOCATION	PHOTO REFERENCE	LAB SAMPLE ID
CG1023-A114	L1: Grey cementitious roofing ballast paver	From Roof Core 15 on southwest side of Roof I	132	7681466
CG1023-A115	L1: Black EPDM roofing membrane	From Roof Core 15 on southwest side of Roof I	133	7681467
CG1023-A116	L1: White "DensDeck" sheathing	From Roof Core 15 on southwest side of Roof I	134	7681468
CG1023-A117	L1: Black hot-mop tar adhered to tectum roof deck	From Roof Core 13 on north side of Roof G	140	7681469
CG1023-A118	L1: Grey putty-like material used at cable penetrations through top of metal conduit	East side of Roof F at large conduit with a bundle of cables sticking out of the top	62	7681470
CG1023-A119	L1: Grey spongy and sticky sealant used on the seams of the pre-cast concrete wall panels	East side of Roof F on pre-cast concrete wall panels around MPR	63	7681471
CG1023-A120	L1: Black rubbery sealant used on the seams of some metal building joint coping seams	Southeast corner of Roof F at intersection of Roofs G and I	64	7681472
--END--				

Page 7 of 7

2023-13-PLM-COC-23-10-03



After printing this label:
1. Use the 'Print' button on this page to print your label to your laser or inkjet printer.
2. Fold the printed page along the horizontal line.
3. Place label in shipping pouch and affix it to your shipment so that the barcode portion of the label can be read and scanned.

Warning: Use only the printed original label for shipping. Using a photocopy of this label for shipping purposes is fraudulent and could result in additional billing charges, along with the cancellation of your FedEx account number.
Use of this system constitutes your agreement to the service conditions in the current FedEx Service Guide, available on fedex.com.FedEx will not be responsible for any claim in excess of $100 per package, whether the result of loss, damage, delay, non-delivery,misdelivery,or misinformation, unless you declare a higher value, pay an additional charge, document your actual loss and file a timely claim.Limitations found in the current FedEx Service Guide apply. Your right to recover from FedEx for any loss, including intrinsic value of the package, loss of sales, income interest, profit, attorney's fees, costs, and other forms of damage whether direct, incidental,consequential, or special is limited to the greater of $100 or the authorized declared value. Recovery cannot exceed actual documented loss.Maximum for items of extraordinary value is $1,000, e.g. jewelry, precious metals, negotiable instruments and other items listed in our ServiceGuide. Written claims must be filed within strict time limits, see current FedEx Service Guide.

iATL INTERNATIONAL
ASBESTOS TESTING LABORATORIES

9000 Commerce Parkway Suite B
Mt. Laurel, New Jersey 08054
Telephone: 856-231-9449
Email: customerservice@iatl.com

CERTIFICATE OF ANALYSIS

Client: HTRW, LLC
11471 Business Blvd., #773442
Anchorage AK 99577

Client: HTR114

Report Date: 10/27/2023
Report No.: 690764 - PLM Rev #2, 10/27/2023
Project: Anchorage School District; College Gate ES Roof Replacement
Project No.: 2023-13

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 7681353
Client No.: CG1023-A01
Analyst Observation: Black/Grey Sealant
Client Description: L1: Light Grey Chalky Sealant Used Between the EPDM Roofing Membrane and the VTR L2: Black Sealant U
Location: North Side of Roof D at VTR Penetration
Facility:

Percent Asbestos:	Percent Non-Asbestos Fibrous Material:	Percent Non-Fibrous Material:
None Detected	None Detected	100

Layers not separable.

Lab No.: 7681354
Client No.: CG1023-A02
Analyst Observation: Grey Sealant
Client Description: L1: White Sealant Used Between the Metal Electrical Shut-Off Enclosure and the EPDM Roofing Membrane
Location: North Side of Roof D on Exhaust Fan
Facility:

Percent Asbestos:	Percent Non-Asbestos Fibrous Material:	Percent Non-Fibrous Material:
None Detected	None Detected	100

Lab No.: 7681355
Client No.: CG1023-A03
Analyst Observation: Clear Sealant
Client Description: L1: Light Grey Rubbery Sealant Used as a "Patch" Sealant on Some of the Metal Parapet Cap Seams
Location: Northwest Side of Roof D at Corner of Parapet Bend From the Southwest Corner of Roof C
Facility:

Percent Asbestos:	Percent Non-Asbestos Fibrous Material:	Percent Non-Fibrous Material:
None Detected	None Detected	100

Lab No.: 7681356
Client No.: CG1023-A04
Analyst Observation: Black Sealant
Client Description: L1: Black Sealant Used on the Screwheads Fastening the Conduit "C" Clips to the EDPM-Covered Sidewal
Location: West Side of Roof D Towards the Northern End of the Sidewall
Facility:

Percent Asbestos:	Percent Non-Asbestos Fibrous Material:	Percent Non-Fibrous Material:
None Detected	None Detected	100

Lab No.: 7681357
Client No.: CG1023-A05
Analyst Observation: Black Sealant
Client Description: L1: Black Sealant Used on the Seams of the EPDM Roofing Membrane
Location: West Side of Roof D Towards the Northern End of the Sidewall
Facility:

Percent Asbestos:	Percent Non-Asbestos Fibrous Material:	Percent Non-Fibrous Material:
None Detected	None Detected	100

Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 10/9/2023
Date Analyzed: 10/16/2023
Signature:
Analyst: Ellen Smith

Approved By:
Frank E. Ehrenfeld, III
Laboratory Director

Dated : 10/27/2023 4:55:06

iATL INTERNATIONAL
ASBESTOS TESTING LABORATORIES

9000 Commerce Parkway Suite B
Mt. Laurel, New Jersey 08054
Telephone: 856-231-9449
Email: customerservice@iatl.com

CERTIFICATE OF ANALYSIS

Client: HTRW, LLC
11471 Business Blvd., #773442
Anchorage AK 99577

Client: HTR114

Report Date: 10/27/2023
Report No.: 690764 - PLM Rev #2, 10/27/2023
Project: Anchorage School District; College Gate ES Roof Replacement
Project No.: 2023-13

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 7681358 **Client No.:** CG1023-A06	**Analyst Observation:** Grey Sealant **Client Description:** L1: Grey Rubbery Sealant Used Between an EPDM Patch and the Sheet Metal Base of an Exhaust Fan	**Location:** Southeast Side of Roof C on Exhaust Fan **Facility:**
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 7681359 **Client No.:** CG1023-A07	**Analyst Observation:** Black Sealant **Client Description:** L1: Black Sealant Used Between the EPDM Roofing Membrane and a Metal Conduit	**Location:** Southeast Side of Roof C at Conduit Penetration **Facility:**
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 7681360 **Client No.:** CG1023-A08	**Analyst Observation:** White Sealant **Client Description:** L1: White Sealant That Appears to Have Used to Adhere the Foam Expansion Joint Material to the EPDM-	**Location:** North Side of Roof C Towards the Eastern Side of the Sidewall **Facility:**
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 7681361 **Client No.:** CG1023-A09	**Analyst Observation:** Black Sealant **Client Description:** L1: Black Sealant Used on the Seams of the EPDM Roofing Membrane	**Location:** North Side of Roof C Near the Center of the Sidewall **Facility:**
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 7681362 **Client No.:** CG1023-A10	**Analyst Observation:** Black Sealant **Client Description:** L1: Black Sealant Used Between the EPDM Roofing Membrane and Sheet Metal Vent Pipe	**Location:** West Side of Roof C at Southern Sheet Metal Vent Pipe Penetration **Facility:**
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100

Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 10/9/2023
Date Analyzed: 10/16/2023
Signature:
Analyst: Ellen Smith

Approved By:
Frank E. Ehrenfeld, III
Laboratory Director

Dated : 10/27/2023 4:55:06

iATL INTERNATIONAL
ASBESTOS TESTING LABORATORIES

9000 Commerce Parkway Suite B
Mt. Laurel, New Jersey 08054
Telephone: 856-231-9449
Email: customerservice@iatl.com

CERTIFICATE OF ANALYSIS

Client: HTRW, LLC
11471 Business Blvd., #773442
Anchorage AK 99577

Client: HTR114

Report Date: 10/27/2023
Report No.: 690764 - PLM Rev #2, 10/27/2023
Project: Anchorage School District; College Gate ES Roof Replacement
Project No.: 2023-13

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 7681363 **Client No.:** CG1023-A11	**Analyst Observation:** Grey Cementitious **Client Description:** L1: Grey Cementitious Roofing Ballast Paver	**Location:** From Roof Core 01 on South Side of Roof D **Facility:**
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 7681364 **Client No.:** CG1023-A12	**Analyst Observation:** Black Expansion Joint **Client Description:** L1: Black Filter Fabric	**Location:** From Roof Core 01 on South Side of Roof D **Facility:**
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 99 Cellulose	Percent Non-Fibrous Material: 1
Lab No.: 7681365 **Client No.:** CG1023-A13	**Analyst Observation:** Black Sealant **Client Description:** L1: Black EPDM Roofing Membrane	**Location:** From Roof Core 01 on South Side of Roof D **Facility:**
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 7681366 **Client No.:** CG1023-A14	**Analyst Observation:** Beige Paper **Client Description:** L1: Brown Paper Slip Sheet	**Location:** From Roof Core 01 on South Side of Roof D **Facility:**
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 100 Cellulose	Percent Non-Fibrous Material: None Detected
Lab No.: 7681367 **Client No.:** CG1023-A15	**Analyst Observation:** White Drywall **Client Description:** L1: White "DensDeck" Sheathing	**Location:** From Roof Core 01 on South Side of Roof D **Facility:**
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 13 Fibrous Glass	Percent Non-Fibrous Material: 87
Lab No.: 7681368 **Client No.:** CG1023-A16	**Analyst Observation:** Black Tar **Client Description:** L1: Black Crispy Hot-Mop Tar Adhered to Corrugated Metal Roof Deck	**Location:** From Roof Core 01 on South Side of Roof D **Facility:**
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100

Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 10/9/2023
Date Analyzed: 10/16/2023
Signature:
Analyst: Ellen Smith

Approved By:
Frank E. Ehrenfeld, III
Laboratory Director

Dated : 10/27/2023 4:55:06

iATL INTERNATIONAL
ASBESTOS TESTING LABORATORIES

9000 Commerce Parkway Suite B
Mt. Laurel, New Jersey 08054
Telephone: 856-231-9449
Email: customerservice@iatl.com

CERTIFICATE OF ANALYSIS

Client: HTRW, LLC
11471 Business Blvd., #773442
Anchorage AK 99577

Client: HTR114

Report Date: 10/27/2023
Report No.: 690764 - PLM Rev #2, 10/27/2023
Project: Anchorage School District; College Gate ES Roof Replacement
Project No.: 2023-13

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 7681369 **Client No.:** CG1023-A17	**Analyst Observation:** Grey Cementitious **Client Description:** L1: Grey Cementitious Roofing Ballast Paver	**Location:** From Roof Core 02 on Northeast Side of Roof C **Facility:**
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 7681370 **Client No.:** CG1023-A18	**Analyst Observation:** Black Expansion Joint **Client Description:** L1: Black Filter Fabric	**Location:** From Roof Core 02 on Northeast Side of Roof C **Facility:**
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 99 Cellulose	Percent Non-Fibrous Material: 1
Lab No.: 7681371 **Client No.:** CG1023-A19	**Analyst Observation:** Black Sealant **Client Description:** L1: Black EPDM Roofing Membrane	**Location:** From Roof Core 02 on Northeast Side of Roof C **Facility:**
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 7681372 **Client No.:** CG1023-A20	**Analyst Observation:** Off-White Drywall **Client Description:** L1: White "DensDeck" Sheathing	**Location:** From Roof Core 02 on Northeast Side of Roof C **Facility:**
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 7681373 **Client No.:** CG1023-A21	**Analyst Observation:** Black Tar **Client Description:** L1: Black Crispy Hot-Mop Tar Adhered to Corrugated Metal Roof Deck	**Location:** From Roof Core 02 on Northeast Side of Roof C **Facility:**
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 7681373(L2) **Client No.:** CG1023-A21	**Analyst Observation:** Tan/Black Vapor Barrier **Client Description:** L2: Tan "Kraft" Paper Vapor Barrier	**Location:** From Roof Core 02 on Northeast Side of Roof C **Facility:**
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 99 Cellulose	Percent Non-Fibrous Material: 1

Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 10/9/2023
Date Analyzed: 10/16/2023
Signature:
Analyst: Ellen Smith

Approved By:
Frank E. Ehrenfeld, III
Laboratory Director

Dated : 10/27/2023 4:55:06

iATL INTERNATIONAL
ASBESTOS TESTING LABORATORIES

9000 Commerce Parkway Suite B
Mt. Laurel, New Jersey 08054
Telephone: 856-231-9449
Email: customerservice@iatl.com

CERTIFICATE OF ANALYSIS

Client: HTRW, LLC
11471 Business Blvd., #773442
Anchorage AK 99577

Client: HTR114

Report Date: 10/27/2023
Report No.: 690764 - PLM Rev #2, 10/27/2023
Project: Anchorage School District; College Gate ES Roof Replacement
Project No.: 2023-13

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 7681374 **Client No.:** CG1023-A22	**Analyst Observation:** Black Sealant **Client Description:** L1: Black Sealant Used on the Seams of the EPDM Roofing Membrane	**Location:** Northeast Corner of Roof B **Facility:**
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 7681375 **Client No.:** CG1023-A23	**Analyst Observation:** White/Grey Sealant **Client Description:** L1: White Sealant That Appears to Have Been Used to Adhere the Foam Expansion Joint Material to the	**Location:** East Side of Roof B Towards the Northern End of the Sidewall **Facility:**
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 7681376 **Client No.:** CG1023-A24	**Analyst Observation:** Black Sealant **Client Description:** L1: Black Sealant Used Between the EPDM Roofing Membrane	**Location:** Southeast Side of Roof B at VTR Penetration **Facility:**
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 7681377 **Client No.:** CG1023-A25	**Analyst Observation:** Black Sealant **Client Description:** L1: Black Sealant Used on the Seams of the EPDM Roofing Membrane	**Location:** Northwest Corner of Roof B **Facility:**
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 7681378 **Client No.:** CG1023-A26	**Analyst Observation:** Grey Cementitious **Client Description:** L1: Grey Cementitious Roofing Ballast Paver	**Location:** From Roof Core 03 on Northwest Side of Roof B **Facility:**
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 7681379 **Client No.:** CG1023-A27	**Analyst Observation:** Black Expansion Joint **Client Description:** L1: Black Filter Fabric	**Location:** From Roof Core 03 on Northwest Side of Roof B **Facility:**
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 99 Cellulose	Percent Non-Fibrous Material: 1

Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 10/9/2023
Date Analyzed: 10/16/2023
Signature:
Analyst: Ellen Smith

Approved By:
Frank E. Ehrenfeld, III
Laboratory Director

Dated : 10/27/2023 4:55:06

iATL INTERNATIONAL
ASBESTOS TESTING LABORATORIES

9000 Commerce Parkway Suite B
Mt. Laurel, New Jersey 08054
Telephone: 856-231-9449
Email: customerservice@iatl.com

CERTIFICATE OF ANALYSIS

Client: HTRW, LLC
11471 Business Blvd., #773442
Anchorage AK 99577

Client: HTR114

Report Date: 10/27/2023
Report No.: 690764 - PLM Rev #2, 10/27/2023
Project: Anchorage School District; College Gate ES Roof Replacement
Project No.: 2023-13

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 7681380 **Client No.:** CG1023-A28	**Analyst Observation:** Black Sealant **Client Description:** L1: Black EPDM Roofing Membrane	**Location:** From Roof Core 03 on Northwest Side of Roof B **Facility:**
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 7681381 **Client No.:** CG1023-A29	**Analyst Observation:** Beige Paper **Client Description:** L1: Brown Paper Slip Sheet	**Location:** From Roof Core 03 on Northwest Side of Roof B **Facility:**
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 100 Cellulose	Percent Non-Fibrous Material: None Detected
Lab No.: 7681382 **Client No.:** CG1023-A30	**Analyst Observation:** White Drywall **Client Description:** L1: White "DensDeck" Sheathing	**Location:** From Roof Core 03 on Northwest Side of Roof B **Facility:**
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 3 Fibrous Glass	Percent Non-Fibrous Material: 97
Lab No.: 7681383 **Client No.:** CG1023-A31	**Analyst Observation:** Black Tar **Client Description:** L1: Black Crispy Hot-Mop Tar Adhered to Corrugated Metal Roof Deck	**Location:** From Roof Core 03 on Northwest Side of Roof B **Facility:**
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 7681384 **Client No.:** CG1023-A32	**Analyst Observation:** Grey Sealant **Client Description:** L1: Grey Gum-Like Material Adhered to Roofing Ballast Paver	**Location:** Near Antenna on Southwest-Center of Roof C **Facility:**
Percent Asbestos: ***PC 7.3*** *Chrysotile*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 92.7
Lab No.: 7681385 **Client No.:** CG1023-A33	**Analyst Observation:** White Texture **Client Description:** L1: White Textured Surface of EIFS	**Location:** Northwest Side of Roof A From Fascia **Facility:**
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100

Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 10/9/2023
Date Analyzed: 10/16/2023
Signature:
Analyst: Ellen Smith

Approved By:
Frank E. Ehrenfeld, III
Laboratory Director

Dated : 10/27/2023 4:55:06

iATL INTERNATIONAL
ASBESTOS TESTING LABORATORIES

9000 Commerce Parkway Suite B
Mt. Laurel, New Jersey 08054
Telephone: 856-231-9449
Email: customerservice@iatl.com

CERTIFICATE OF ANALYSIS

Client: HTRW, LLC
11471 Business Blvd., #773442
Anchorage AK 99577

Client: HTR114

Report Date: 10/27/2023
Report No.: 690764 - PLM Rev #2, 10/27/2023
Project: Anchorage School District; College Gate ES Roof Replacement
Project No.: 2023-13

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 7681386 **Client No.:** CG1023-A34	**Analyst Observation:** Black Sealant **Client Description:** L1: Black Sealant Used Between the EPDM Roofing Membrane and Sheet Metal Vent	**Location:** West Side of Roof A From Sheet Metal Vent **Facility:**
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 7681387 **Client No.:** CG1023-A35	**Analyst Observation:** Dk Brown/Green Sealant **Client Description:** L1: Light Grey Chalky Sealant Used Between the EPDM Roofing Membrane and the VTR	**Location:** Near Center of Roof A at Short VTR Penetration **Facility:**
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 7681387(L2) **Client No.:** CG1023-A35	**Analyst Observation:** Black Sealant **Client Description:** L2: Black Sealant Used Between the EPDM Roofing Membrane and the VTR	**Location:** Near Center of Roof A at Short VTR Penetration **Facility:**
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 7681388 **Client No.:** CG1023-A36	**Analyst Observation:** Grey Cementitious **Client Description:** L1: Grey Cementitious Roofing Ballast Paver	**Location:** From Roof Core 04 on East Side of Roof A **Facility:**
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 7681389 **Client No.:** CG1023-A37	**Analyst Observation:** Black Sealant **Client Description:** L1: Black EPDM Roofing Membrane	**Location:** From Roof Core 04 on East Side of Roof A **Facility:**
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 7681390 **Client No.:** CG1023-A38	**Analyst Observation:** Off-White Drywall **Client Description:** L1: White "DensDeck" Sheathing	**Location:** From Roof Core 04 on East Side of Roof A **Facility:**
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100

Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 10/9/2023
Date Analyzed: 10/16/2023
Signature:
Analyst: Ellen Smith

Approved By:
Frank E. Ehrenfeld, III
Laboratory Director

Dated : 10/27/2023 4:55:06

iATL INTERNATIONAL
ASBESTOS TESTING LABORATORIES

9000 Commerce Parkway Suite B
Mt. Laurel, New Jersey 08054
Telephone: 856-231-9449
Email: customerservice@iatl.com

CERTIFICATE OF ANALYSIS

Client: HTRW, LLC
11471 Business Blvd., #773442
Anchorage AK 99577

Client: HTR114

Report Date: 10/27/2023
Report No.: 690764 - PLM Rev #2, 10/27/2023
Project: Anchorage School District; College Gate ES Roof Replacement
Project No.: 2023-13

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 7681391 **Client No.:** CG1023-A39	**Analyst Observation:** Black Sealant **Client Description:** L1: Black Sealant Used on the Seams of EPDM Roofing Membrane	**Location:** On Horizontal Seam of EPDM Next to Roof Core 04 on East Side of Roof A **Facility:**
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 7681392 **Client No.:** CG1023-A40	**Analyst Observation:** Grey Sealant **Client Description:** L1: Sticky, Gummy-Like Grey Sealant Used Inside of Roof Drain Bowls at the Clamping Rings	**Location:** Inside of Roof Drain Bowl Next to Roof Core 04 on East Side of Roof A **Facility:**
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 7681393 **Client No.:** CG1023-A41	**Analyst Observation:** Black Sealant **Client Description:** L1: Black Sealant Used on the Seams of EPDM Roofing Membrane	**Location:** From Horizontal Seam of EPDM at Base of Sidewall on the North Side of Roof E **Facility:**
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 7681394 **Client No.:** CG1023-A42	**Analyst Observation:** Black Sealant **Client Description:** L1: Black Sealant Used on the Seams of EPDM Roofing Membrane	**Location:** From Vertical Seam of EPDM on Sidewall on the North Side of Roof E **Facility:**
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 7681395 **Client No.:** CG1023-A43	**Analyst Observation:** Grey Cementitious **Client Description:** L1: Grey Cementitious Roofing Ballast Paver	**Location:** From Roof Core 05 on the North Side of Roof E **Facility:**
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100

Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 10/9/2023
Date Analyzed: 10/16/2023
Signature:
Analyst: Ellen Smith

Approved By:
Frank E. Ehrenfeld, III
Laboratory Director

Dated : 10/27/2023 4:55:06

iATL INTERNATIONAL
ASBESTOS TESTING LABORATORIES

9000 Commerce Parkway Suite B
Mt. Laurel, New Jersey 08054
Telephone: 856-231-9449
Email: customerservice@iatl.com

CERTIFICATE OF ANALYSIS

Client: HTRW, LLC
11471 Business Blvd., #773442
Anchorage AK 99577

Client: HTR114

Report Date: 10/27/2023
Report No.: 690764 - PLM Rev #2, 10/27/2023
Project: Anchorage School District; College Gate ES Roof Replacement
Project No.: 2023-13

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 7681396 **Client No.:** CG1023-A44	**Analyst Observation:** Black Expansion Joint **Client Description:** L1: Black Filter Fabric	**Location:** From Roof Core 05 on the North Side of Roof E **Facility:**
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 100 Cellulose	Percent Non-Fibrous Material: None Detected
Lab No.: 7681397 **Client No.:** CG1023-A45	**Analyst Observation:** Black Sealant **Client Description:** L1: Black EPDM Roofing Membrane	**Location:** From Roof Core 05 on the North Side of Roof E **Facility:**
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 7681398 **Client No.:** CG1023-A46	**Analyst Observation:** Beige Paper **Client Description:** L1: Brown Paper Slip Sheet	**Location:** From Roof Core 05 on the North Side of Roof E **Facility:**
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 100 Cellulose	Percent Non-Fibrous Material: None Detected
Lab No.: 7681399 **Client No.:** CG1023-A47	**Analyst Observation:** White Drywall **Client Description:** L1: White "DensDeck" Sheathing	**Location:** From Roof Core 05 on the North Side of Roof E **Facility:**
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 1 Fibrous Glass	Percent Non-Fibrous Material: 99
Lab No.: 7681400 **Client No.:** CG1023-A48	**Analyst Observation:** Black Tar **Client Description:** L1: Black Crispy Hot-Mop Tar Adhered to Corrugated Metal Roof Deck	**Location:** From Roof Core 05 on the North Side of Roof E **Facility:**
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 7681400(L2) **Client No.:** CG1023-A48	**Analyst Observation:** Tan/Black Vapor Barrier **Client Description:** L2: Tan "Kraft" Paper Vapor Barrier	**Location:** From Roof Core 05 on the North Side of Roof E **Facility:**
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 97 Cellulose	Percent Non-Fibrous Material: 3

Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 10/9/2023
Date Analyzed: 10/16/2023
Signature:
Analyst: Ellen Smith

Approved By:
Frank E. Ehrenfeld, III
Laboratory Director

Dated : 10/27/2023 4:55:06

iATL INTERNATIONAL
ASBESTOS TESTING LABORATORIES

9000 Commerce Parkway Suite B
Mt. Laurel, New Jersey 08054
Telephone: 856-231-9449
Email: customerservice@iatl.com

CERTIFICATE OF ANALYSIS

Client: HTRW, LLC
11471 Business Blvd., #773442
Anchorage AK 99577

Client: HTR114

Report Date: 10/27/2023
Report No.: 690764 - PLM Rev #2, 10/27/2023
Project: Anchorage School District; College Gate ES Roof Replacement
Project No.: 2023-13

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 7681401
Client No.: CG1023-A49

Analyst Observation: Black Sealant
Client Description: L1: Black Sealant Used Between the EPDM Roofing Membrane and the VTR

Location: From VTR Penetration Near the Center of Roof E
Facility:

Percent Asbestos:
None Detected

Percent Non-Asbestos Fibrous Material:
None Detected

Percent Non-Fibrous Material:
100

Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 10/9/2023
Date Analyzed: 10/16/2023
Signature:
Analyst: Ellen Smith

Approved By:
Frank E. Ehrenfeld, III
Laboratory Director

Dated : 10/27/2023 4:55:06

iATL INTERNATIONAL
ASBESTOS TESTING LABORATORIES

9000 Commerce Parkway Suite B
Mt. Laurel, New Jersey 08054
Telephone: 856-231-9449
Email: customerservice@iatl.com

CERTIFICATE OF ANALYSIS

Client: HTRW, LLC
11471 Business Blvd., #773442
Anchorage AK 99577

Client: HTR114

Report Date: 10/27/2023
Report No.: 690764 - PLM Rev #2, 10/27/2023
Project: Anchorage School District; College Gate ES Roof Replacement
Project No.: 2023-13

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 7681402
Client No.: CG1023-A50
Analyst Observation: Grey Sealant
Client Description: L1: Light Grey Gum-Like Material of Unknown Purpose
Location: At Base of VTR Penetration Near the Center of Roof E
Facility:

Percent Asbestos:	Percent Non-Asbestos Fibrous Material:	Percent Non-Fibrous Material:
None Detected	None Detected	100

Lab No.: 7681403
Client No.: CG1023-A51
Analyst Observation: Black Sealant
Client Description: L1: Black Sealant Used on the Seams of the EPDM Roofing Membrane
Location: From Horizontal Seam of EPDM at Base of Sidewall on the West Side of Roof E
Facility:

Percent Asbestos:	Percent Non-Asbestos Fibrous Material:	Percent Non-Fibrous Material:
None Detected	None Detected	100

Lab No.: 7681404
Client No.: CG1023-A52
Analyst Observation: Black Sealant
Client Description: L1: Black Sealant Used on the Seams of the EPDM Roofing Membrane
Location: Front Vertical Seam of EPDM on Sidewall on the West Side of Roof E
Facility:

Percent Asbestos:	Percent Non-Asbestos Fibrous Material:	Percent Non-Fibrous Material:
None Detected	None Detected	100

Lab No.: 7681405
Client No.: CG1023-A53
Analyst Observation: Grey Sealant
Client Description: L1: Sticky, Gummy-Like Grey Sealant Used Inside of Roof Drain Bowls at the Clamping Rings
Location: Inside of Roof Drain Bowl on West Side of Roof E
Facility:

Percent Asbestos:	Percent Non-Asbestos Fibrous Material:	Percent Non-Fibrous Material:
None Detected	None Detected	100

Sample received wet

Lab No.: 7681406
Client No.: CG1023-A54
Analyst Observation: Lt Grey Sealant
Client Description: L1: Light Grey Chalky Sealant Used Between the Metal EPDM Roofing Membrane Retainer Strip and the Pr
Location: Southeast Corner of Roof E
Facility:

Percent Asbestos:	Percent Non-Asbestos Fibrous Material:	Percent Non-Fibrous Material:
None Detected	None Detected	100

Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 10/9/2023
Date Analyzed: 10/19/2023
Signature:
Analyst: Maxamillian Roselli

Approved By:
Frank E. Ehrenfeld, III
Laboratory Director

Dated : 10/27/2023 4:55:06

iATL INTERNATIONAL
ASBESTOS TESTING LABORATORIES

9000 Commerce Parkway Suite B
Mt. Laurel, New Jersey 08054
Telephone: 856-231-9449
Email: customerservice@iatl.com

CERTIFICATE OF ANALYSIS

Client: HTRW, LLC
11471 Business Blvd., #773442
Anchorage AK 99577

Client: HTR114

Report Date: 10/27/2023
Report No.: 690764 - PLM Rev #2, 10/27/2023
Project: Anchorage School District; College Gate ES Roof Replacement
Project No.: 2023-13

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 7681407 **Client No.:** CG1023-A55	**Analyst Observation:** Grey Sealant **Client Description:** L1: Grey Spongy and Sticky Sealant Used on the Seams of the Pre-Cast Concrete Walls	**Location:** South Side of Roof E on Walls Around MPR **Facility:**
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 7681408 **Client No.:** CG1023-A56	**Analyst Observation:** Grey Cementitious **Client Description:** L1: Grey Cementitious Roofing Ballast Paver	**Location:** From Roof Core 06 Near Center of Roof E **Facility:**
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 7681409 **Client No.:** CG1023-A57	**Analyst Observation:** Black Felt **Client Description:** L1: Black Filter Fabric	**Location:** From Roof Core 06 Near Center of Roof E **Facility:**
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 5 Synthetic	Percent Non-Fibrous Material: 95
Sample received wet		
Lab No.: 7681410 **Client No.:** CG1023-A58	**Analyst Observation:** Black Rubber **Client Description:** L1: Black EPDM Roofing Membrane	**Location:** From Roof Core 06 Near Center of Roof E **Facility:**
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 7681411 **Client No.:** CG1023-A59	**Analyst Observation:** White Drywall **Client Description:** L1: White "DensDeck" Sheathing	**Location:** From Roof Core 06 Near Center of Roof E **Facility:**
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 7681412 **Client No.:** CG1023-A60	**Analyst Observation:** Black Tar **Client Description:** L1: Black Crispy Hot-Mop Tar Adhered to Corrugated Metal Roof Deck	**Location:** From Roof Core 06 Near Center of Roof E **Facility:**
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100

Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 10/9/2023
Date Analyzed: 10/19/2023
Signature:
Analyst: Maxamillian Roselli

Approved By:
Frank E. Ehrenfeld, III
Laboratory Director

Dated : 10/27/2023 4:55:06

iATL INTERNATIONAL
ASBESTOS TESTING LABORATORIES

9000 Commerce Parkway Suite B
Mt. Laurel, New Jersey 08054
Telephone: 856-231-9449
Email: customerservice@iatl.com

CERTIFICATE OF ANALYSIS

Client: HTRW, LLC
11471 Business Blvd., #773442
Anchorage AK 99577

Client: HTR114

Report Date: 10/27/2023
Report No.: 690764 - PLM Rev #2, 10/27/2023
Project: Anchorage School District; College Gate ES Roof Replacement
Project No.: 2023-13

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 7681412(L2)
Client No.: CG1023-A60
Analyst Observation: Tan/Black Tar Paper
Client Description: L2: Tan "Kraft" Paper Vapor Barrier
Location: From Roof Core 06 Near Center of Roof E
Facility:

Percent Asbestos:	Percent Non-Asbestos Fibrous Material:	Percent Non-Fibrous Material:
None Detected	10 Cellulose	90

Lab No.: 7681413
Client No.: CG1023-A61
Analyst Observation: White Sealant
Client Description: L1: Hard White Sealant Used Between the Metal Boiler Flue and Metal Collar
Location: From Northern Boiler Flue on Roof M
Facility:

Percent Asbestos:	Percent Non-Asbestos Fibrous Material:	Percent Non-Fibrous Material:
None Detected	None Detected	100

Lab No.: 7681414
Client No.: CG1023-A62
Analyst Observation: Red Sealant
Client Description: L1: Red-Orange Rubbery Sealant Remnant on the Outside Circumference of the Metal Boiler Flue
Location: From Northern Boiler Flue on Roof M
Facility:

Percent Asbestos:	Percent Non-Asbestos Fibrous Material:	Percent Non-Fibrous Material:
None Detected	None Detected	100

Lab No.: 7681415
Client No.: CG1023-A63
Analyst Observation: Grey Sealant
Client Description: L1: Grey Rubbery Sealant Used Between the Metal Boiler Flue and Metal Collar
Location: From Northern Boiler Flue on Roof M
Facility:

Percent Asbestos:	Percent Non-Asbestos Fibrous Material:	Percent Non-Fibrous Material:
None Detected	None Detected	100

Lab No.: 7681416
Client No.: CG1023-A64
Analyst Observation: Black Tar
Client Description: L1: Crispy Black Tar Smeared on the Top of the Roof Hatch
Location: South Side of Roof M
Facility:

Percent Asbestos:	Percent Non-Asbestos Fibrous Material:	Percent Non-Fibrous Material:
None Detected	None Detected	100

Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 10/9/2023
Date Analyzed: 10/19/2023
Signature:
Analyst: Maxamillian Roselli

Approved By:
Frank E. Ehrenfeld, III
Laboratory Director

Dated : 10/27/2023 4:55:06

iATL INTERNATIONAL
ASBESTOS TESTING LABORATORIES

9000 Commerce Parkway Suite B
Mt. Laurel, New Jersey 08054
Telephone: 856-231-9449
Email: customerservice@iatl.com

CERTIFICATE OF ANALYSIS

Client: HTRW, LLC
11471 Business Blvd., #773442
Anchorage AK 99577

Client: HTR114

Report Date: 10/27/2023
Report No.: 690764 - PLM Rev #2, 10/27/2023
Project: Anchorage School District; College Gate ES Roof Replacement
Project No.: 2023-13

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 7681417 **Client No.:** CG1023-A65	**Analyst Observation:** Black Tar Paper **Client Description:** L1: Black Tarry Felt Paper	**Location:** Southwest Corner of Roof M Wedged Between the EIFS Siding and the Pre-Cast Concrete Wall Panel **Facility:**
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 5 Cellulose	Percent Non-Fibrous Material: 95
Lab No.: 7681418 **Client No.:** CG1023-A66	**Analyst Observation:** White Sealant **Client Description:** L1: White Rubbery Sealant Used Between the Metal Drip Edge and Metal Coping	**Location:** Southwest Corner of Roof M **Facility:**
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 7681419 **Client No.:** CG1023-A67	**Analyst Observation:** Lt Grey Coating **Client Description:** L1: Light Grey Textured Surface of EIFS	**Location:** Southeast Corner of Roof M at Hole in EIFS Siding **Facility:**
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Layers not separable.		
Lab No.: 7681420 **Client No.:** CG1023-A68	**Analyst Observation:** Black Tar **Client Description:** L1: Black Roof Mastic Remnant	**Location:** From Mechanical Hood on West Side of Roof G **Facility:**
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 5 Cellulose	Percent Non-Fibrous Material: 95
Lab No.: 7681421 **Client No.:** CG1023-A69	**Analyst Observation:** Black Sealant **Client Description:** L1: Black Sealant Used on the Seams of the EPDM Roofing Membrane	**Location:** West Side of Roof J Near Center of Sidewall **Facility:**
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100

Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 10/9/2023
Date Analyzed: 10/19/2023
Signature:
Analyst: Maxamillian Roselli

Approved By:
Frank E. Ehrenfeld, III
Laboratory Director

Dated : 10/27/2023 4:55:06

iATL INTERNATIONAL
ASBESTOS TESTING LABORATORIES

9000 Commerce Parkway Suite B
Mt. Laurel, New Jersey 08054
Telephone: 856-231-9449
Email: customerservice@iatl.com

CERTIFICATE OF ANALYSIS

Client: HTRW, LLC
11471 Business Blvd., #773442
Anchorage AK 99577

Client: HTR114

Report Date: 10/27/2023
Report No.: 690764 - PLM Rev #2, 10/27/2023
Project: Anchorage School District; College Gate ES Roof Replacement
Project No.: 2023-13

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 7681422
Client No.: CG1023-A70
Analyst Observation: Black Sealant
Client Description: L1: White Sealant Used to Adhere the Foam Expansion Joint Material to the EPDM-Covered Mechanical Cu
Location: Southwest Side of Roof J on Sheet Metal Vent
Facility:

Percent Asbestos:	Percent Non-Asbestos Fibrous Material:	Percent Non-Fibrous Material:
None Detected	None Detected	100

Sample color different than client description.

Lab No.: 7681423
Client No.: CG1023-A71
Analyst Observation: Grey/Lt Grey Cementitious
Client Description: L1: Light Grey Textured Surface of EIFS
Location: At Damaged Area of EIFS Siding on West Side of Roof K, Collected From Roof J Level
Facility:

Percent Asbestos:	Percent Non-Asbestos Fibrous Material:	Percent Non-Fibrous Material:
None Detected	None Detected	100

Lab No.: 7681424
Client No.: CG1023-A72
Analyst Observation: Lt Grey Sealant
Client Description: L1: Light Grey Sealant Used as a "Patch" Sealant on Some Drip Edge Seams
Location: South Side of Roof J on Western End of Wall Around Gym
Facility:

Percent Asbestos:	Percent Non-Asbestos Fibrous Material:	Percent Non-Fibrous Material:
None Detected	None Detected	100

Lab No.: 7681425
Client No.: CG1023-A73
Analyst Observation: Lt Grey Coating
Client Description: L1: Light Grey Textured Surface of EIFS
Location: At Bottom of EIFS Siding Behind Ladder on South Side of Roof J
Facility:

Percent Asbestos:	Percent Non-Asbestos Fibrous Material:	Percent Non-Fibrous Material:
None Detected	None Detected	100

Lab No.: 7681426
Client No.: CG1023-A74
Analyst Observation: Grey Sealant
Client Description: L1: Sticky, Gummy-Like Grey Sealant Used Inside of Roof Drain Bowls at the Clamping Rings
Location: Inside of Roof Drain Bowl on the Southeast Side of Roof J
Facility:

Percent Asbestos:	Percent Non-Asbestos Fibrous Material:	Percent Non-Fibrous Material:
None Detected	None Detected	100

Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 10/9/2023
Date Analyzed: 10/19/2023
Signature:
Analyst: Maxamillian Roselli

Approved By:
Frank E. Ehrenfeld, III
Laboratory Director

Dated : 10/27/2023 4:55:06

iATL INTERNATIONAL
ASBESTOS TESTING LABORATORIES

9000 Commerce Parkway Suite B
Mt. Laurel, New Jersey 08054
Telephone: 856-231-9449
Email: customerservice@iatl.com

CERTIFICATE OF ANALYSIS

Client: HTRW, LLC
11471 Business Blvd., #773442
Anchorage AK 99577

Client: HTR114

Report Date: 10/27/2023
Report No.: 690764 - PLM Rev #2, 10/27/2023
Project: Anchorage School District; College Gate ES Roof Replacement
Project No.: 2023-13

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 7681427 **Client No.:** CG1023-A75	**Analyst Observation:** Black Sealant **Client Description:** L1: Black Sealant Used Between the EPDM Roofing Membrane and the VTR	**Location:** Southeast Side of Roof J at VTR Penetration **Facility:**
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 7681428 **Client No.:** CG1023-A76	**Analyst Observation:** Black Sealant **Client Description:** L1: Black Sealant Used on the Seams of the EPDM Roofing Membrane	**Location:** East Side of Roof J From Southern End of Sidewall **Facility:**
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 7681429 **Client No.:** CG1023-A77	**Analyst Observation:** Grey Cementitious **Client Description:** L1: Grey Cementitious Roofing Ballast Paver	**Location:** From Roof Core 08 on North Side of Roof F **Facility:**
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 7681430 **Client No.:** CG1023-A78	**Analyst Observation:** Black Felt **Client Description:** L1: Black Filter Fabric	**Location:** From Roof Core 08 on North Side of Roof F **Facility:**
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 20 Synthetic	Percent Non-Fibrous Material: 80
Sample received wet		
Lab No.: 7681431 **Client No.:** CG1023-A79	**Analyst Observation:** Black Rubber **Client Description:** L1: Black EPDM Roofing Membrane	**Location:** From Roof Core 08 on North Side of Roof F **Facility:**
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 7681432 **Client No.:** CG1023-A80	**Analyst Observation:** Tan Paper **Client Description:** L1: Brown Paper Slip Sheet	**Location:** From Roof Core 08 on North Side of Roof F **Facility:**
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 5 Cellulose	Percent Non-Fibrous Material: 95

Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 10/9/2023
Date Analyzed: 10/19/2023
Signature:
Analyst: Maxamillian Roselli

Approved By:
Frank E. Ehrenfeld, III
Laboratory Director

Dated : 10/27/2023 4:55:06

iATL INTERNATIONAL
ASBESTOS TESTING LABORATORIES

9000 Commerce Parkway Suite B
Mt. Laurel, New Jersey 08054
Telephone: 856-231-9449
Email: customerservice@iatl.com

CERTIFICATE OF ANALYSIS

Client: HTRW, LLC
11471 Business Blvd., #773442
Anchorage AK 99577

Client: HTR114

Report Date: 10/27/2023
Report No.: 690764 - PLM Rev #2, 10/27/2023
Project: Anchorage School District; College Gate ES Roof Replacement
Project No.: 2023-13

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 7681433 **Client No.:** CG1023-A81	**Analyst Observation:** White Drywall **Client Description:** L1: White "DensDeck" Sheathing	**Location:** From Roof Core 08 on North Side of Roof F **Facility:**
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 3 Fibrous Glass	Percent Non-Fibrous Material: 97
Lab No.: 7681434 **Client No.:** CG1023-A82	**Analyst Observation:** Black Tar **Client Description:** L1: Black Crispy Hot-Mop Tar Adhered to Corrugated Metal Roof Deck	**Location:** From Roof Core 08 on North Side of Roof F **Facility:**
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 7681434(L2) **Client No.:** CG1023-A82	**Analyst Observation:** Tan Tar Paper **Client Description:** L2: Tan "Kraft" Paper Vapor Barrier	**Location:** From Roof Core 08 on North Side of Roof F **Facility:**
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 3 Cellulose	Percent Non-Fibrous Material: 97
Lab No.: 7681435 **Client No.:** CG1023-A83	**Analyst Observation:** Grey Cementitious **Client Description:** L1: Grey Cementitious Roofing Ballast Paver	**Location:** From Roof Core 09 on Southwest Side of Roof C **Facility:**
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 7681436 **Client No.:** CG1023-A84	**Analyst Observation:** Black Felt **Client Description:** L1: Black Filter Fabric	**Location:** From Roof Core 09 on Southwest Side of Roof C **Facility:**
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 20 Synthetic	Percent Non-Fibrous Material: 80
Lab No.: 7681437 **Client No.:** CG1023-A85	**Analyst Observation:** Black Rubber **Client Description:** L1: Black EPDM Roofing Membrane	**Location:** From Roof Core 09 on Southwest Side of Roof C **Facility:**
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100

Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 10/9/2023
Date Analyzed: 10/19/2023
Signature:
Analyst: Maxamillian Roselli

Approved By:
Frank E. Ehrenfeld, III
Laboratory Director

Dated : 10/27/2023 4:55:06

iATL INTERNATIONAL
ASBESTOS TESTING LABORATORIES

9000 Commerce Parkway Suite B
Mt. Laurel, New Jersey 08054
Telephone: 856-231-9449
Email: customerservice@iatl.com

CERTIFICATE OF ANALYSIS

Client: HTRW, LLC
11471 Business Blvd., #773442
Anchorage AK 99577

Client: HTR114

Report Date: 10/27/2023
Report No.: 690764 - PLM Rev #2, 10/27/2023
Project: Anchorage School District; College Gate ES Roof Replacement
Project No.: 2023-13

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 7681438 **Client No.:** CG1023-A86	**Analyst Observation:** Brown Paper **Client Description:** L1: Brown Paper Slip Sheet	**Location:** From Roof Core 09 on Southwest Side of Roof C **Facility:**
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 5 Cellulose	Percent Non-Fibrous Material: 95
Lab No.: 7681439 **Client No.:** CG1023-A87	**Analyst Observation:** White Drywall **Client Description:** L1: White "DensDeck" Sheathing	**Location:** From Roof Core 09 on Southwest Side of Roof C **Facility:**
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 7681440 **Client No.:** CG1023-A88	**Analyst Observation:** Black Tar **Client Description:** L1: Black Crispy Hot-Mop Tar Adhered to Corrugated Metal Roof Deck	**Location:** From Roof Core 09 on Southwest Side of Roof C **Facility:**
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 7681441 **Client No.:** CG1023-A89	**Analyst Observation:** Grey Cementitious **Client Description:** L1: Grey Cementitious Roofing Ballast Paver	**Location:** From Roof Core 10 on South Side of Roof J **Facility:**
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100

Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 10/9/2023
Date Analyzed: 10/19/2023
Signature:
Analyst: Maxamillian Roselli

Approved By:
Frank E. Ehrenfeld, III
Laboratory Director

Dated : 10/27/2023 4:55:06

iATL INTERNATIONAL
ASBESTOS TESTING LABORATORIES

9000 Commerce Parkway Suite B
Mt. Laurel, New Jersey 08054
Telephone: 856-231-9449
Email: customerservice@iatl.com

CERTIFICATE OF ANALYSIS

Client: HTRW, LLC
11471 Business Blvd., #773442
Anchorage AK 99577

Client: HTR114

Report Date: 10/27/2023
Report No.: 690764 - PLM Rev #2, 10/27/2023
Project: Anchorage School District; College Gate ES Roof Replacement
Project No.: 2023-13

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 7681442
Client No.: CG1023-A90
Analyst Observation: Black Roof Material
Client Description: L1: Black Plastic Separator Sheet
Location: From Roof Core 10 on South Side of Roof J
Facility:
Percent Asbestos: *None Detected*
Percent Non-Asbestos Fibrous Material: None Detected
Percent Non-Fibrous Material: 100

Lab No.: 7681443
Client No.: CG1023-A91
Analyst Observation: Black Roof Material
Client Description: L1: Black EPDM Roofing Membrane
Location: From Roof Core 10 on South Side of Roof J
Facility:
Percent Asbestos: *None Detected*
Percent Non-Asbestos Fibrous Material: None Detected
Percent Non-Fibrous Material: 100

Lab No.: 7681444
Client No.: CG1023-A92
Analyst Observation: Off-White Drywall
Client Description: L1: White "DensDeck" Sheathing
Location: From Roof Core 10 on South Side of Roof J
Facility:
Percent Asbestos: *None Detected*
Percent Non-Asbestos Fibrous Material: 5 Cellulose, 2 Fibrous Glass
Percent Non-Fibrous Material: 93

Lab No.: 7681445
Client No.: CG1023-A93
Analyst Observation: Black Sealant
Client Description: L1: Black Sealant Used on the Seams of the EPDM Roofing Membrane
Location: West Side of Roof K Near Center of Sidewall
Facility:
Percent Asbestos: *None Detected*
Percent Non-Asbestos Fibrous Material: None Detected
Percent Non-Fibrous Material: 100

Lab No.: 7681446
Client No.: CG1023-A94
Analyst Observation: Black Sealant
Client Description: L1: Black Sealant Used to Adhere the Foam Expansion Joint Material to the EPDM-Covered Sidewall
Location: West Side of Roof K Near Center of Sidewall
Facility:
Percent Asbestos: *None Detected*
Percent Non-Asbestos Fibrous Material: None Detected
Percent Non-Fibrous Material: 100

Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 10/9/2023
Date Analyzed: 10/16/2023
Signature:
Analyst: Dean Andrews

Approved By:
Frank E. Ehrenfeld, III
Laboratory Director

Dated : 10/27/2023 4:55:06

iATL INTERNATIONAL
ASBESTOS TESTING LABORATORIES

9000 Commerce Parkway Suite B
Mt. Laurel, New Jersey 08054
Telephone: 856-231-9449
Email: customerservice@iatl.com

CERTIFICATE OF ANALYSIS

Client: HTRW, LLC
11471 Business Blvd., #773442
Anchorage AK 99577

Client: HTR114

Report Date: 10/27/2023
Report No.: 690764 - PLM Rev #2, 10/27/2023
Project: Anchorage School District; College Gate ES Roof Replacement
Project No.: 2023-13

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 7681447 **Client No.:** CG1023-A95	**Analyst Observation:** Lt Grey Sealant **Client Description:** L1: Light Grey Sealant Used as a "Patch" Sealant on Some Seams of the EPDM-Covered Sidewall	**Location:** North Side of Roof K Near Center of Sidewall **Facility:**
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 7681448 **Client No.:** CG1023-A96	**Analyst Observation:** Grey Cementitious **Client Description:** L1: Grey Cementitious Roofing Ballast Paver	**Location:** From Roof Core 11 on North Side of Roof K **Facility:**
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 7681449 **Client No.:** CG1023-A97	**Analyst Observation:** Black Mesh **Client Description:** L1: Black Plastic Separator Sheet	**Location:** From Roof Core 11 on North Side of Roof K **Facility:**
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 98 Synthetic	Percent Non-Fibrous Material: 2
Lab No.: 7681450 **Client No.:** CG1023-A98	**Analyst Observation:** Black Roof Material **Client Description:** L1: Black EPDM Roofing Membrane	**Location:** From Roof Core 11 on North Side of Roof K **Facility:**
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 30 Synthetic	Percent Non-Fibrous Material: 70
Lab No.: 7681451 **Client No.:** CG1023-A99	**Analyst Observation:** Off-White Drywall **Client Description:** L1: White "DensDeck" Sheathing	**Location:** From Roof Core 11 on North Side of Roof K **Facility:**
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 5 Cellulose 2 Fibrous Glass	Percent Non-Fibrous Material: 93
Lab No.: 7681452 **Client No.:** CG1023-A100	**Analyst Observation:** Grey Cementitious **Client Description:** L1: Grey Cementitious Roofing Ballast Paver	**Location:** From Roof Core 12 on South Side of Roof G **Facility:**
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100

Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 10/9/2023
Date Analyzed: 10/16/2023
Signature:
Analyst: Dean Andrews

Approved By:
Frank E. Ehrenfeld, III
Laboratory Director

Dated : 10/27/2023 4:55:07

iATL INTERNATIONAL
ASBESTOS TESTING LABORATORIES

9000 Commerce Parkway Suite B
Mt. Laurel, New Jersey 08054
Telephone: 856-231-9449
Email: customerservice@iatl.com

CERTIFICATE OF ANALYSIS

Client: HTRW, LLC
11471 Business Blvd., #773442
Anchorage AK 99577

Client: HTR114

Report Date: 10/27/2023
Report No.: 690764 - PLM Rev #2, 10/27/2023
Project: Anchorage School District; College Gate ES Roof Replacement
Project No.: 2023-13

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 7681453 **Client No.:** CG1023-A101	**Analyst Observation:** Black Roof Material **Client Description:** L1: Black Filter Fabric	**Location:** From Roof Core 12 on South Side of Roof G **Facility:**
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 98 Synthetic	Percent Non-Fibrous Material: 2
Lab No.: 7681454 **Client No.:** CG1023-A102	**Analyst Observation:** Black Roof Material **Client Description:** L1: Black EPDM Roofing Membrane	**Location:** From Roof Core 12 on South Side of Roof G **Facility:**
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 7681455 **Client No.:** CG1023-A103	**Analyst Observation:** Pink Paper **Client Description:** L1: Brown Paper Slip Sheet	**Location:** From Roof Core 12 on South Side of Roof G **Facility:**
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 97 Cellulose 1 Synthetic	Percent Non-Fibrous Material: 2
Lab No.: 7681456 **Client No.:** CG1023-A104	**Analyst Observation:** White Drywall **Client Description:** L1: White "DensDeck" Sheathing	**Location:** From Roof Core 12 on South Side of Roof G **Facility:**
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 2 Cellulose 10 Fibrous Glass	Percent Non-Fibrous Material: 88
Lab No.: 7681457 **Client No.:** CG1023-A105	**Analyst Observation:** Grey Cementitious **Client Description:** L1: Grey Cementitious Roofing Ballast Paver	**Location:** From Roof Core 13 on North Side of Roof G **Facility:**
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100

Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 10/9/2023
Date Analyzed: 10/16/2023
Signature:
Analyst: Dean Andrews

Approved By:
Frank E. Ehrenfeld, III
Laboratory Director

Dated : 10/27/2023 4:55:07

iATL INTERNATIONAL
ASBESTOS TESTING LABORATORIES

9000 Commerce Parkway Suite B
Mt. Laurel, New Jersey 08054
Telephone: 856-231-9449
Email: customerservice@iatl.com

CERTIFICATE OF ANALYSIS

Client: HTRW, LLC
11471 Business Blvd., #773442
Anchorage AK 99577

Client: HTR114

Report Date: 10/27/2023
Report No.: 690764 - PLM Rev #2, 10/27/2023
Project: Anchorage School District; College Gate ES Roof Replacement
Project No.: 2023-13

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 7681458 **Client No.:** CG1023-A106	**Analyst Observation:** Black Fibrous **Client Description:** L1: Black Filter Fabric	**Location:** From Roof Core 13 on North Side of Roof G **Facility:**
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 98 Synthetic	Percent Non-Fibrous Material: 2
Lab No.: 7681459 **Client No.:** CG1023-A107	**Analyst Observation:** Black Roof Material **Client Description:** L1: Black EPDM Roofing Membrane	**Location:** From Roof Core 13 on North Side of Roof G **Facility:**
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 7681460 **Client No.:** CG1023-A108	**Analyst Observation:** Off-White Drywall **Client Description:** L1: White "DensDeck" Sheathing	**Location:** From Roof Core 13 on North Side of Roof G **Facility:**
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 2 Cellulose 10 Fibrous Glass	Percent Non-Fibrous Material: 88
Lab No.: 7681461 **Client No.:** CG1023-A109	**Analyst Observation:** Black Sealant **Client Description:** L1: Black Sealant Used on the Seams of the Metal Coping on the Perimeters of Roof G	**Location:** North Side of Roof G Near Center of Coping **Facility:**
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 7681462 **Client No.:** CG1023-A110	**Analyst Observation:** Grey Cementitious **Client Description:** L1: Grey Cementitious Roofing Ballast Paver	**Location:** From Roof Core 14 on Northeast Side of Roof M **Facility:**
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 7681463 **Client No.:** CG1023-A111	**Analyst Observation:** Black Filter **Client Description:** L1: Black Filter Fabric	**Location:** From Roof Core 14 on Northeast Side of Roof M **Facility:**
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 98 Synthetic	Percent Non-Fibrous Material: 2

Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 10/9/2023
Date Analyzed: 10/16/2023
Signature:
Analyst: Dean Andrews

Approved By:
Frank E. Ehrenfeld, III
Laboratory Director

Dated : 10/27/2023 4:55:07

iATL INTERNATIONAL
ASBESTOS TESTING LABORATORIES

9000 Commerce Parkway Suite B
Mt. Laurel, New Jersey 08054
Telephone: 856-231-9449
Email: customerservice@iatl.com

CERTIFICATE OF ANALYSIS

Client: HTRW, LLC
11471 Business Blvd., #773442
Anchorage AK 99577

Client: HTR114

Report Date: 10/27/2023
Report No.: 690764 - PLM Rev #2, 10/27/2023
Project: Anchorage School District; College Gate ES Roof Replacement
Project No.: 2023-13

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 7681464 **Client No.:** CG1023-A112	**Analyst Observation:** Black Roof Material **Client Description:** L1: Black EPDM Roofing Membrane	**Location:** From Roof Core 14 on Northeast Side of Roof M **Facility:**
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 7681465 **Client No.:** CG1023-A113	**Analyst Observation:** White Drywall **Client Description:** L1: White "DensDeck" Sheathing	**Location:** From Roof Core 14 on Northeast Side of Roof M **Facility:**
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 2 Cellulose 10 Fibrous Glass	Percent Non-Fibrous Material: 88
Lab No.: 7681466 **Client No.:** CG1023-A114	**Analyst Observation:** Grey Cementitious **Client Description:** L1: Grey Cementitious Roofing Ballast Paver	**Location:** From Roof Core 15 on Southwest Side of Roof I **Facility:**
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 7681467 **Client No.:** CG1023-A115	**Analyst Observation:** Black Roof Material **Client Description:** L1: Black EPDM Roofing Membrane	**Location:** From Roof Core 15 on Southwest Side of Roof I **Facility:**
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 7681468 **Client No.:** CG1023-A116	**Analyst Observation:** White Drywall **Client Description:** L1: White "DensDeck" Sheathing	**Location:** From Roof Core 15 on Southwest Side of Roof I **Facility:**
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 2 Cellulose 10 Fibrous Glass	Percent Non-Fibrous Material: 88

Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 10/9/2023
Date Analyzed: 10/16/2023
Signature:
Analyst: Dean Andrews

Approved By:
Frank E. Ehrenfeld, III
Laboratory Director

Dated : 10/27/2023 4:55:07

iATL INTERNATIONAL
ASBESTOS TESTING LABORATORIES

9000 Commerce Parkway Suite B
Mt. Laurel, New Jersey 08054
Telephone: 856-231-9449
Email: customerservice@iatl.com

CERTIFICATE OF ANALYSIS

Client: HTRW, LLC
11471 Business Blvd., #773442
Anchorage AK 99577

Client: HTR114

Report Date: 10/27/2023
Report No.: 690764 - PLM Rev #2, 10/27/2023
Project: Anchorage School District; College Gate ES Roof Replacement
Project No.: 2023-13

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 7681469 **Client No.:** CG1023-A117	**Analyst Observation:** Black Tar **Client Description:** L1: Black Hot-Mop Tar Adhered to Tectum Roof Deck	**Location:** From Roof Core 13 on North Side of Roof G **Facility:**
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 7681470 **Client No.:** CG1023-A118	**Analyst Observation:** Grey Putty **Client Description:** L1: Grey Putty-Like Material Used at Cable Penetrations Through Top of Metal Conduit	**Location:** East Side of Roof F at Large Conduit With a Bundle of Cables Sticking Out of the Top **Facility:**
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 20 Fibrous Glass	Percent Non-Fibrous Material: 80
Lab No.: 7681471 **Client No.:** CG1023-A119	**Analyst Observation:** Grey Putty **Client Description:** L1: Grey Spongy and Sticky Sealant Used on the Seams of the Pre-Cast Concrete Wall Panels	**Location:** East Side of Roof F on Pre-Cast Concrete Wall Panels Around MPR **Facility:**
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 1 Fibrous Glass	Percent Non-Fibrous Material: 99
Lab No.: 7681472 **Client No.:** CG1023-A120	**Analyst Observation:** Black Sealant **Client Description:** L1: Black Rubbery Sealant Used on the Seams of Some Metal Building Joint Coping Seams	**Location:** Southeast Corner of Roof F at Intersection of Roofs G and I **Facility:**
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100

Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 10/9/2023
Date Analyzed: 10/16/2023
Signature:
Analyst: Dean Andrews

Approved By:
Frank E. Ehrenfeld, III
Laboratory Director

Dated : 10/27/2023 4:55:07

9000 Commerce Parkway Suite B
Mt. Laurel, New Jersey 08054
Telephone: 856-231-9449
Email: customerservice@iatl.com

CERTIFICATE OF ANALYSIS

Client:	HTRW, LLC	Report Date:	10/27/2023
	11471 Business Blvd., #773442	Report No.:	690764 - PLM
	Anchorage AK 99577	Project:	Anchorage School District; College Gate ES Roof Replacement
		Project No.:	2023-13
Client:	HTR114		

Appendix to Analytical Report

Customer Contact: Chris Ottosen
Method: 40 CFR Appendix E to Subpart E of Part 763, interim method for the Determination of Asbestos in Bulk Insulation Samples, USEPA 600, R93-116 and NYSDOH ELAP 198.1 as needed.

This appendix seeks to promote greater understanding of any observations, exceptions, special instructions, or circumstances that the laboratory needs to communicate to the client concerning the above samples. The information below is used to help promote your ability to make the most informed decisions for you and your customers. Please note the following points of contact for any questions you may have.

iATL Customer Service: customerservice@iatl.com
iATL Office Manager: wchampion@iatl.com
iATL Account Representative: House Account
Sample Login Notes: See Batch Sheet Attached
Sample Matrix: Bulk Building Materials
Exceptions Noted: See Following Pages

General Terms, Warrants, Limits, Qualifiers:

General information about iATL capabilities and client/laboratory relationships and responsibilities are spelled out in iATL policies that are listed at www.iATL.com and ir our Quality Assurance Manual per ISO 17025 standard requirements. The information therein is a representation of iATL definitions and policies for turnaround times, sample submittal, collection media, blank definitions, quantification issues and limit of detection, analytical methods and procedures, sub-contracting policies, results reporting options, fees, terms, and discounts, confidentiality, sample archival and disposal, and data interpretation.

iATL warrants the test results to be of a precision normal for the type and methodology employed for each sample submitted. iATL disclaims any other warrants, expressed or implied, including warranty of fitness for a particular purpose and warranty of merchantability. iATL accepts no legal responsibility for the purpose for which the client uses test results. Any analytical work performed must be governed by our Standard Terms and Conditions. Prices, methods and detection limits may be changed without notification. Please contact your Customer Service Representative for the most current information.

This confidential report relates only to those item(s) tested and does not represent an endorsement by NIST-NVLAP, AIHA LAP LLC, or any agency of local, state or province governments nor of any agency of the U.S. government.

This report shall not be reproduced except in full, without written approval of the laboratory.

Information Pertinent to this Report:

Analysis by US EPA 600 93-116: Determination of Asbestos in Bulk Building Materials by Polarized Light Microscopy (PLM).

Certifications:

- NIST-NVLAP No. 101165-0
- NYSDOH-ELAP No. 11021
- AIHA-LAP, LLC No. 100188

Quantification at <0.25% by volume is possible with this method. (PC) Indicates Stratified Point Count Method performed. (PC-Trace) means that asbestos was detected but is not quantifiable under the Point Counting regimen. PC Trace represents a <0.25% amount. Analysis includes all distinct separable layers in accordance with EPA 600 Method. If not reported or otherwise noted, layer is either not present or the client has specifically requested that it not be analyzed (ex. analyze until positive instructions). Small asbestos fibers may be missed by PLM due to resolution limitations of the optical microscope. Therefore, PLM is not consistently reliable in detecting asbestos in non-friable organically bound (NOB) materials. Quantitative transmission electron microscopy (TEM) is currently the only method that can pronounce materials as non-asbestos containing.

Analytical Methodology Alternatives: Your initial request for analysis may not have accounted for recent advances in regulatory requirements or advances in technology that are routinely used in similar situations for other qualified projects. You may have the option to explore additional analysis for further information. Below are a few options, listed as the matrix followed by the appropriate methodology. Also included are links to more information on our website.

Bulk Building Materials that are Non-Friable Organically Bound (NOB) by Gravimetric Reduction techniques employing PLM and TEM: ELAP 198.6 (PLM-NOB), ELAP 198.4 (TEM-NOB) See additional information at the end of this appendix.

iATL INTERNATIONAL
ASBESTOS TESTING LABORATORIES

9000 Commerce Parkway Suite B
Mt. Laurel, New Jersey 08054
Telephone: 856-231-9449
Email: customerservice@iatl.com

CERTIFICATE OF ANALYSIS

Client:	HTRW, LLC	Report Date:	10/27/2023
	11471 Business Blvd., #773442	Report No.:	690764 - PLM
	Anchorage AK 99577	Project:	Anchorage School District; College Gate ES Roof Replacement
		Project No.:	2023-13
Client:	HTR114		

Loose Fill Vermiculite Insulation, Attic Insulation, Zonolite (copyright), etc.: US EPA 600 R-4/004 (multi-tiered analytical process)
Sprayed On Insulation/Fireproofing with Vermiculite (SOF-V): ELAP 198.8 (PLM-SOF-V)

Soil, sludge, sediment, aggregate, and like materials analyzed for asbestos or other elongated mineral particles (ex. erionite, etc.): ASTM D7521, CARB 435, and other options available

Asbestos in Surface Dust according to one of ASTM's Methods (very dependent on sampling collection technique – by TEM): ASTM D 5755, D5756, or D6480

Various other asbestos matrices (air, water, etc.) and analytical methods are available.

Disclaimers / Qualifiers:

There may be some samples in this project that have a "NOTE:" associated with a sample result. We use added disclaimers or qualifiers to inform the client about something that requires further explanation. Here is a list with highlighted disclaimers that may be pertinent to this project. For a full explanation of these and other disclaimers, please inquire at **customerservice@iatl.com**.

1) Note: No mastic provided for analysis.
2) Note: Insufficient mastic provided for analysis.
3) Note: Insufficient material provided for analysis.
4) Note: Insufficient sample provided for QC reanalysis.
5) Note: Different material than indicated on Sample Log / Description.
6) Note: Sample not submitted.
7) Note: Attached to asbestos containing material.
8) Note: Received wet.
9) Note: Possible surface contamination.
10) Note: Not building material. 1% threshold may not apply.
11) Note: Recommend TEM-NOB analysis as per EPA recommendations.
12) Note: Asbestos detected but not quantifiable.
13) Note: Multiple identical samples submitted, only one analyzed.
14) Note: Analyzed by EPA 600/R-93/116. Point Counting detection limit at 0.080%.
15) Note: Analyzed by EPA 600/R-93/116. Point Counting detection limit at 0.125%.
16) Note: This sample contains >10% vermiculite mineral. See Appendix for Recommendations for Vermiculite Analysis.

Recommendations for Vermiculite Analysis:

Several analytical protocols exist for the analysis of asbestos in vermiculite. These analytical approaches vary depending upon the nature of the vermiculite mineral being tested (e.g. un-processed gange, homogeneous exfoliated books of mica, or mixed mineral composites).Please contact your client representative for pricing and turnaround time options available.

iATL recommends initial testing using the EPA 600/R-93/116 method. This method is specifically designed for the analysis of asbestos in bulk building materials. It provides an acceptable starting point for primary screening of vermiculite for possible asbestos.

Results from this testing may be inconclusive. EPA suggests proceeding to a multi-tiered analysis involving wet separation techniques in conjunction with PLM and TEM gravimetric analysis (EPA 600/R-04/004).

For New York State customers, NYSDOH requires disclaimers and qualifiers for various vermiculite containing samples that direct analysis via ELAP198.6 and ELAP198.8 for samples that contain >10% vermiculite mineral where ELAP198.6 may be used to evaluate the asbestos content of the material. However, any test result using ELAP198.6 will be reported with the following disclaimer: “ELAP198.6 method does not remove vermiculite and may underestimate the level of asbestos present in a sample containing >10% vermiculite.”

Further information on this method and other vermiculite and asbestos issues can be found at the following: Agency for Toxic Substances and Disease Registry (ATSDR) www.atsdr.cdc.gov, United States Geological Survey (USGS) www.minerals.usgs.gov/minerals/, US EPA www.epa.gov/asbestos. The USEPA also has an informative brochure "Current Best Practices for Vermiculite Attic Insulation" EPA 747F03001 May 2003, that may assist the health and remediation professional. NYS customers please follow current NYSDOH ELAP requirements per policy on subject of surfacing and vermiculite, May 6, 2016, Testing Requirements for Surfacing Material Containing Vermiculite (https://www.wadsworth.org/sites/default/files/WebDoc/I198_8_02_2.pdf)

The following is a summary of the analytical process outlines in the EPA 600/R-04/004 Method:

1)**Analytical Step/Method:** Initial Screening by PLM, EPA 600R-93/116
Requirements/Comments: Minimum of 0.1 g of sample. ~0.25% for most samples.

iATL INTERNATIONAL
ASBESTOS TESTING LABORATORIES

9000 Commerce Parkway Suite B
Mt. Laurel, New Jersey 08054
Telephone: 856-231-9449
Email: customerservice@iatl.com

CERTIFICATE OF ANALYSIS

Client:	HTRW, LLC	Report Date:	10/27/2023
	11471 Business Blvd., #773442	Report No.:	690764 - PLM
	Anchorage AK 99577	Project:	Anchorage School District; College Gate ES Roof Replacement
		Project No.:	2023-13
Client:	HTR114		

2)**Analytical Step/Method:** Wet Separation by PLM Gravimetric Technique, EPA R-04/004
Requirements/Comments: Minimum 50g** of dry sample. Analysis of "Sinks" only.

3)**Analytical Step/Method:** Wet Separation by PLM Gravimetric Technique, EPA R-04/004
Requirements/Comments: Minimum 50g** of dry sample. Analysis of "Floats" only.

4)**Analytical Step/Method:** Wet Separation by TEM Gravimetric Technique, EPA R-04/004
Requirements/Comments: Minimum 50g** of dry sample. Analysis of "Sinks" only.

5)**Analytical Step/Method:** Wet Separation by TEM Gravimetric Technique, EPA R-04/004
Requirements/Comments: Minimum 50g** of dry sample. Analysis of "Suspension" only.
*With advance notice and confirmation by the laboratory.
**Approximately 1 Liter of sample in double-bagged container (~9x6 inch bag of sample).

New York State Department of Health requires that samples originating from NYS that they categorize as Non-friable Organically Bound materials can only be confirmed as None Detected for asbestos by method 198.4. See the table below for a list of those materials. (ENVIRONMENTAL LABORATORY APPROVAL PROGRAM CERTIFICATION MANUAL - ITEM No. 198.1, Revision Date 5/6/16)

*Asphalt Shingles, Caulking, Ceiling Tiles with Cellulose, Duct Wrap, Glazing, Mastic, Paint Chips, Resilient Floor Tiles, Rubberized Asbestos Gaskets, Siding Shingles, Vinyl Asbestos Tile, NOB materials (other that SM-V) with <10% vermiculite, Any material (Friable or NOB other than SM-V) with >10% vermiculite.

Statistically derived uncertainty with any measure should be taken into consideration when reviewing and interpreting all reported data and results. A more comprehensive listing of accuracy, precision, and uncertainty as it impacts this method is available upon request.

HTRW, LLC

CHAIN OF CUSTODY

11471 Business Blvd., #773442
Eagle River, Alaska 99577
(907)-917-3801

Project Number	2023-13					Selected Laboratory	iATL
Project Name	Anchorage School District RFP 2023-619 Design Services: College Gate Elementary School Roof Replacement					Shipping Method	FedEx, 7736 6014 3220
Address/Location	3101 Sunflower Street, Anchorage, Alaska 99508					Date and Time	10/06/2023, 10:30 AM
Client	RIM Architects, LLC					Samples Received By	
Inspector/Collected By	Christopher T. Ottosen					Date and Time	10/12/23
EPA B.I.# and State	TBI4-123-17473/Alaska					Analyst Signature(s)	
Collection Date	10/03-04/2023	Quantity	120	Turnaround	10-Day		
Requested Analysis	Asbestos Bulk by PLM, EPA Method 600, R93-116						
Special Notes	E-mail results to cottosen@htrw-llc.com. Provide a scanned color copy of this chain of custody or return the original hard copies. Do not analyze wood, paint, or foam or perform composite analysis of gypsum wall board and joint compound unless specifically asked for in the sample description.						

SAMPLE NUMBER	SAMPLE DESCRIPTION	SAMPLE LOCATION	PHOTO REFERENCE	LAB SAMPLE ID
CG1023-A01	L1: Light grey chalky sealant used between the EPDM roofing membrane and the VTR L2: Black sealant used between the EPDM roofing membrane and the VTR	North side of Roof D at VTR penetration	01	7681353
CG1023-A02	L1: White sealant used between the metal electrical shut-off enclosure and the EPDM roofing membrane	North side of Roof D on east exhaust fan	02	7681354
CG1023-A03	L1: Light grey rubbery sealant used as a "patch" sealant on some of the metal parapet cap seams	Northwest side of Roof D at corner of parapet bend from the southwest corner of roof C	03	7681355
CG1023-A04	L1: Black sealant used on the screwheads fastening the conduit "c" clips to the EDPM-covered sidewall	West side of Roof D towards the northern end of the sidewall	04	7681356
CG1023-A05	L1: Black sealant used on the seams of the EPDM roofing membrane	West side of Roof D towards the northern end of the sidewall	05	7681357
CG1023-A06	L1: Grey rubbery sealant used between an EPDM patch and the sheet metal base of an exhaust fan	Southeast side of Roof C on exhaust fan	06	7681358
CG1023-A07	L1: Black sealant used between the EPDM roofing membrane and a metal conduit	Southeast side of Roof C at conduit penetration	07	7681359
CG1023-A08	L1: White sealant that appears to have been used to adhere the foam expansion joint material to the EPDM-covered sidewall	North side of Roof C towards the eastern side of the sidewall	08	7681360

Page 1 of 7

ANALYZED TCM 10/13/23

2023-13-PLM-COC-23-10-03

HTRW, LLC

CHAIN OF CUSTODY

11471 Business Blvd., #773442
Eagle River, Alaska 99577
(907)-917-3801

SAMPLE NUMBER	SAMPLE DESCRIPTION	SAMPLE LOCATION	PHOTO REFERENCE	LAB SAMPLE ID
CG1023-A09	L1: Black sealant used on the seams of the EPDM roofing membrane	North side of Roof C near the center of the sidewall	09	7681361
CG1023-A10	L1: Black sealant used between the EPDM roofing membrane and sheet metal vent pipe	West side of Roof C at southern sheet metal vent pipe penetration	10	7681362
CG1023-A11	L1: Grey cementitious roofing ballast paver	From Roof Core 01 on south side of Roof D	11	7681363
CG1023-A12	L1: Black filter fabric	From Roof Core 01 on south side of Roof D	12	7681364
CG1023-A13	L1: Black EPDM roofing membrane	From Roof Core 01 on south side of Roof D	13	7681365
CG1023-A14	L1: Brown paper slip sheet	From Roof Core 01 on south side of Roof D	14	7681366
CG1023-A15	L1: White "DensDeck" sheathing	From Roof Core 01 on south side of Roof D	15	7681367
CG1023-A16	L1: Black crispy hot-mop tar adhered to corrugated metal roof deck	From Roof Core 01 on south side of Roof D	15	7681368
CG1023-A17	L1: Grey cementitious roofing ballast paver	From Roof Core 02 on northeast side of Roof C	18	7681369
CG1023-A18	L1: Black filter fabric	From Roof Core 02 on northeast side of Roof C	19	7681370
CG1023-A19	L1: Black EPDM roofing membrane	From Roof Core 02 on northeast side of Roof C	20	7681371
CG1023-A20	L1: White "DensDeck" sheathing	From Roof Core 02 on northeast side of Roof C	21	7681372
CG1023-A21	L1: Black crispy hot-mop tar adhered to corrugated metal roof deck L2: Tan "Kraft" paper vapor barrier	From Roof Core 02 on northeast side of Roof C	22	7681373
CG1023-A22	L1: Black sealant used on the seams of the EPDM roofing membrane	Northeast corner of Roof B	23	7681374
CG1023-A23	L1: White sealant that appears to have been used to adhere the foam expansion joint material to the EPDM-covered sidewall	East side of Roof B towards the northern end of the sidewall	24	7681375
CG1023-A24	L1: Black sealant used between the EPDM roofing membrane and the VTR	Southeast side of Roof B at VTR penetration	25	7681376
CG1023-A25	L1: Black sealant used on the seams of the EPDM roofing membrane	Northwest corner of Roof B	26	7681377
CG1023-A26	L1: Grey cementitious roofing ballast paver	From Roof Core 03 on northwest side of Roof B	27	7681378
CG1023-A27	L1: Black filter fabric	From Roof Core 03 on northwest side of Roof B	28	7681379
CG1023-A28	L1: Black EPDM roofing membrane	From Roof Core 03 on northwest side of Roof B	29	7681380
CG1023-A29	L1: Brown paper slip sheet	From Roof Core 03 on northwest side of Roof B	30	7681381

HTRW, LLC

CHAIN OF CUSTODY

11471 Business Blvd., #773442
Eagle River, Alaska 99577
(907)-917-3801

SAMPLE NUMBER	SAMPLE DESCRIPTION	SAMPLE LOCATION	PHOTO REFERENCE	LAB SAMPLE ID
CG1023-A30	L1: White "DensDeck" sheathing	From Roof Core 03 on northwest side of Roof B	31	7681383
CG1023-A31	L1: Black crispy hot-mop tar adhered to corrugated metal roof deck	From Roof Core 03 on northwest side of Roof B	31	7681383
CG1023-A32	L1: Grey gum-like material adhered to roofing ballast paver	Near antenna on southwest-center of Roof C	32	7681384
CG1023-A33	L1: White textured surface of EIFS	Northwest side of Roof A from fascia	33	7681385
CG1023-A34	L1: Black sealant used between the EPDM roofing membrane and sheet metal vent	West side of Roof A from sheet metal vent	34	7681386
CG1023-A35	L1: Light grey chalky sealant used between the EPDM roofing membrane and the VTR L2: Black sealant used between the EPDM roofing membrane and the VTR	Near center of Roof A at short VTR penetration	35	7681387
CG1023-A36	L1: Grey cementitious roofing ballast paver	From Roof Core 04 on east side of Roof A	37	7681388
CG1023-A37	L1: Black EPDM roofing membrane	From Roof Core 04 on east side of Roof A	38	7681389
CG1023-A38	L1: White "DensDeck" sheathing	From Roof Core 04 on east side of Roof A	39	7681390
CG1023-A39	L1: Black sealant used on the seams of the EPDM roofing membrane	On horizontal seam of EPDM next to Roof Core 04 on east side of Roof A	36	7681382
CG1023-A40	L1: Sticky, gummy-like grey sealant used inside of roof drain bowls at the clamping rings	Inside of roof drain bowl next to Roof Core 04 on east side of Roof A	41	7681393
CG1023-A41	L1: Black sealant used on the seams of the EPDM roofing membrane	From horizontal seam of EPDM at base of sidewall on the north side of Roof E	44	7681393
CG1023-A42	L1: Black sealant used on the seams of the EPDM roofing membrane	From vertical seam of EPDM on sidewall on the north side of Roof E	44	7681394
CG1023-A43	L1: Grey cementitious roofing ballast paver	From Roof Core 05 on the north side of Roof E	46	7681395
CG1023-A44	L1: Black filter fabric	From Roof Core 05 on the north side of Roof E	47	7681396
CG1023-A45	L1: Black EPDM roofing membrane	From Roof Core 05 on the north side of Roof E	48	7681397
CG1023-A46	L1: Brown paper slip sheet	From Roof Core 05 on the north side of Roof E	49	7681398
CG1023-A47	L1: White "DensDeck" sheathing	From Roof Core 05 on the north side of Roof E	50	7681399
CG1023-A48	L1: Black crispy hot-mop tar adhered to corrugated metal roof deck L2: Tan "Kraft" paper vapor barrier	From Roof Core 05 on the north side of Roof E	50	7681400
CG1023-A49	L1: Black sealant used between the EPDM roofing membrane and the VTR	From VTR penetration near the center of Roof E	52	7681401

2023-13-PLM-COC-23-10-03

HTRW, LLC

CHAIN OF CUSTODY

11471 Business Blvd., #773442
Eagle River, Alaska 99577
(907)-917-3801

SAMPLE NUMBER	SAMPLE DESCRIPTION	SAMPLE LOCATION	PHOTO REFERENCE	LAB SAMPLE ID
CG1023-A50	L1: Light grey gum-like material of unknown purpose	At base of VTR penetration near the center of Roof E	53	768140[illegible]
CG1023-A51	L1: Black sealant used on the seams of the EPDM roofing membrane	From horizontal seam of EPDM at base of sidewall on the west side of Roof E	56	76814[illegible]
CG1023-A52	L1: Black sealant used on the seams of the EPDM roofing membrane	From vertical seam of EPDM on sidewall on the west side of Roof E	57	76814[illegible]
CG1023-A53	L1: Sticky, gummy-like grey sealant used inside of roof drain bowls at the clamping rings	Inside of Roof Drain bowl on west side of Roof E	59	76814[illegible]
CG1023-A54	L1: Light grey chalky sealant used between the metal EPDM roofing membrane retainer strip and the pre-cast concrete wall panel	Southeast corner of Roof E	61	76814[illegible]
CG1023-A55	L1: Grey spongy and sticky sealant used on the seams of the pre-cast concrete wall panels	South side of Roof E on walls around MPR	60	76814[illegible]
CG1023-A56	L1: Grey cementitious roofing ballast paver	From Roof Core 06 near center of Roof E	67	76814[illegible]
CG1023-A57	L1: Black filter fabric	From Roof Core 06 near center of Roof E	68	76814[illegible]
CG1023-A58	L1: Black EPDM roofing membrane	From Roof Core 06 near center of Roof E	69	76814[illegible]
CG1023-A59	L1: White "DensDeck" sheathing	From Roof Core 06 near center of Roof E	70	76814[illegible]
CG1023-A60	L1: Black crispy hot-mop tar adhered to corrugated metal roof deck L2: Tan "Kraft" paper vapor barrier	From Roof Core 06 near center of Roof E	71	76814[illegible]
CG1023-A61	L1: Hard white sealant used between the metal boiler flue and metal collar	From northern boiler flue on Roof M	73	76814[illegible]
CG1023-A62	L1: Red-orange rubbery sealant remnant on the outside circumference of the metal boiler flue	From southern boiler flue on Roof M	74	76814[illegible]
CG1023-A63	L1: Grey rubbery sealant used between the metal boiler flue and metal collar	From southern boiler flue on Roof M	75	76814[illegible]
CG1023-A64	L1: Crispy black tar smeared on the top of the roof hatch	South side of Roof M	76	76814[illegible]
CG1023-A65	L1: Black tarry felt paper	Southwest corner of Roof M wedged between the EIFS siding and the pre-cast concrete wall panel	77	76814[illegible]
CG1023-A66	L1: White rubbery sealant used between the metal drip edge and metal coping	Southwest corner of Roof M	78	76814[illegible]
CG1023-A67	L1: Light grey textured surface of EIFS	Southeast corner of Roof M at hole in EIFS siding	79	76814[illegible]
CG1023-A68	L1: Black roof mastic remnant	From mechanical hood on west side of Roof G	80	768142[illegible]

HTRW, LLC

CHAIN OF CUSTODY

11471 Business Blvd., #773442
Eagle River, Alaska 99577
(907)-917-3801

SAMPLE NUMBER	SAMPLE DESCRIPTION	SAMPLE LOCATION	PHOTO REFERENCE	LAB SAMPLE ID
CG1023-A69	L1: Black sealant used on the seams of the EPDM roofing membrane	West side of Roof J near center of sidewall	82	7681[illegible]
CG1023-A70	L1: White sealant used to adhere the foam expansion joint material to the EPDM-covered mechanical curb	Southwest side of Roof J on sheet metal vent	83	7681[illegible]
CG1023-A71	L1: Light grey textured surface of EIFS	At damaged area of EIFS siding on west side of Roof K, collected from Roof J level	84	7681[illegible]
CG1023-A72	L1: Light grey sealant used as a "patch" sealant on some drip edge seams	South side of Roof J on western end of wall around Gym	85	7681[illegible]
CG1023-A73	L1: Light grey textured surface of EIFS	At bottom of EIFS siding behind ladder on south side of Roof J	86	7681[illegible]
CG1023-A74	L1: Sticky, gummy-like grey sealant used inside of roof drain bowls at the clamping rings	Inside of roof drain bowl on the southeast side of Roof J	88	7681[illegible]
CG1023-A75	L1: Black sealant used between the EPDM roofing membrane and the VTR	Southeast side of Roof J at VTR penetration	89	7681[illegible]
CG1023-A76	L1: Black sealant used on the seams of the EPDM roofing membrane	East side of Roof J from southern end of sidewall	90	7681[illegible]
CG1023-A77	L1: Grey cementitious roofing ballast paver	From Roof Core 08 on north side of Roof F	93	7681[illegible]
CG1023-A78	L1: Black filter fabric	From Roof Core 08 on north side of Roof F	94	7681[illegible]
CG1023-A79	L1: Black EPDM roofing membrane	From Roof Core 08 on north side of Roof F	95	7681[illegible]
CG1023-A80	L1: Brown paper slip sheet	From Roof Core 08 on north side of Roof F	96	7681[illegible]
CG1023-A81	L1: White "DensDeck" sheathing	From Roof Core 08 on north side of Roof F	97	7681[illegible]
CG1023-A82	L1: Black crispy hot-mop tar adhered to corrugated metal roof deck L2: Tan "Kraft" paper vapor barrier	From Roof Core 08 on north side of Roof F	98	7681[illegible]
CG1023-A83	L1: Grey cementitious roofing ballast paver	From Roof Core 09 on southwest side of Roof C	100	7681[illegible]
CG1023-A84	L1: Black filter fabric	From Roof Core 09 on southwest side of Roof C	101	7681[illegible]
CG1023-A85	L1: Black EPDM roofing membrane	From Roof Core 09 on southwest side of Roof C	102	7681[illegible]
CG1023-A86	L1: Brown paper slip sheet	From Roof Core 09 on southwest side of Roof C	103	7681[illegible]
CG1023-A87	L1: White "DensDeck" sheathing	From Roof Core 09 on southwest side of Roof C	104	7681[illegible]
CG1023-A88	L1: Black crispy hot-mop tar adhered to corrugated metal roof deck	From Roof Core 09 on southwest side of Roof C	105	7681[illegible]
CG1023-A89	L1: Grey cementitious roofing ballast paver	From Roof Core 10 on south side of Roof J	None	7681[illegible]

2023-13-PLM-COC-23-10-03

HTRW, LLC

CHAIN OF CUSTODY

11471 Business Blvd., #773442
Eagle River, Alaska 99577
(907)-917-3801

SAMPLE NUMBER	SAMPLE DESCRIPTION	SAMPLE LOCATION	PHOTO REFERENCE	LAB SAMPLE ID
CG1023-A90	L1: Black plastic separator sheet	From Roof Core 10 on south side of Roof J	None	768144
CG1023-A91	L1: Black EPDM roofing membrane	From Roof Core 10 on south side of Roof J	None	768144
CG1023-A92	L1: White "DensDeck" sheathing	From Roof Core 10 on south side of Roof J	None	768144
CG1023-A93	L1: Black sealant used on the seams of the EPDM roofing membrane	West side of Roof K near center of sidewall	106	768144
CG1023-A94	L1: Black sealant used to adhere the foam expansion joint material to the EPDM-covered sidewall	West side of Roof K near center of sidewall	107	768144
CG1023-A95	L1: Light grey sealant used as a "patch" sealant on some seams of the EPDM-covered sidewall	North side of Roof K near center of sidewall	108	768144
CG1023-A96	L1: Grey cementitious roofing ballast paver	From Roof Core 11 on north side of Roof K	110	768144
CG1023-A97	L1: Black plastic separator sheet	From Roof Core 11 on north side of Roof K	111	768144
CG1023-A98	L1: Black EPDM roofing membrane	From Roof Core 11 on north side of Roof K	112	768144
CG1023-A99	L1: White "DensDeck" sheathing	From Roof Core 11 on north side of Roof K	113	768144
CG1023-A100	L1: Grey cementitious roofing ballast paver	From Roof Core 12 on south side of Roof G	115	768144
CG1023-A101	L1: Black filter fabric	From Roof Core 12 on south side of Roof G	116	768144
CG1023-A102	L1: Black EPDM roofing membrane	From Roof Core 12 on south side of Roof G	117	768145
CG1023-A103	L1: Brown paper slip sheet	From Roof Core 12 on south side of Roof G	114	768145
CG1023-A104	L1: White "DensDeck" sheathing	From Roof Core 12 on south side of Roof G	118	768145
CG1023-A105	L1: Grey cementitious roofing ballast paver	From Roof Core 13 on north side of Roof G	120	768145
CG1023-A106	L1: Black filter fabric	From Roof Core 13 on north side of Roof G	121	768145
CG1023-A107	L1: Black EPDM roofing membrane	From Roof Core 13 on north side of Roof G	122	768145
CG1023-A108	L1: White "DensDeck" sheathing	From Roof Core 13 on north side of Roof G	123	768145
CG1023-A109	L1: Black sealant used on the seams of the metal coping on the perimeters of Roof G	North side of Roof G near center of coping	124	768145
CG1023-A110	L1: Grey cementitious roofing ballast paver	From Roof Core 14 on northeast side of Roof M	127	768145
CG1023-A111	L1: Black filter fabric	From Roof Core 14 on northeast side of Roof M	128	768145
CG1023-A112	L1: Black EPDM roofing membrane	From Roof Core 14 on northeast side of Roof M	129	768145
CG1023-A113	L1: White "DensDeck" sheathing	From Roof Core 14 on northeast side of Roof M	130	768145

2023-13-PLM-COC-23-10-03

HTRW, LLC

CHAIN OF CUSTODY

11471 Business Blvd., #773442
Eagle River, Alaska 99577
(907)-917-3801

SAMPLE NUMBER	SAMPLE DESCRIPTION	SAMPLE LOCATION	PHOTO REFERENCE	LAB SAMPLE ID
CG1023-A114	L1: Grey cementitious roofing ballast paver	From Roof Core 15 on southwest side of Roof I	132	768_486
CG1023-A115	L1: Black EPDM roofing membrane	From Roof Core 15 on southwest side of Roof I	133	76814
CG1023-A116	L1: White "DensDeck" sheathing	From Roof Core 15 on southwest side of Roof I	134	768
CG1023-A117	L1: Black hot-mop tar adhered to tectum roof deck	From Roof Core 13 on north side of Roof G	140	768
CG1023-A118	L1: Grey putty-like material used at cable penetrations through top of metal conduit	East side of Roof F at large conduit with a bundle of cables sticking out of the top	62	7681
CG1023-A119	L1: Grey spongy and sticky sealant used on the seams of the pre-cast concrete wall panels	East side of Roof F on pre-cast concrete wall panels around MPR	63	7681
CG1023-A120	L1: Black rubbery sealant used on the seams of some metal building joint coping seams	Southeast corner of Roof F at intersection of Roofs G and I	64	7681
--END--				

2023-13-PLM-COC-23-10-03

iATL INTERNATIONAL
ASBESTOS TESTING LABORATORIES

9000 Commerce Parkway Suite B
Mt. Laurel, New Jersey 08054
Telephone: 856-231-9449
Email: customerservice@iatl.com

CERTIFICATE OF ANALYSIS

Client: HTRW, LLC
11471 Business Blvd., #773442
Anchorage AK 99577

Client: HTR114

Report Date: 10/27/2023
Report No.: 690764 - TEM NOB Rev #3, 10/30/2023
Project: Anchorage School District; College Gate ES Roof Replacement
Project No.: 2023-13

TEM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 7681356
Client No.: CG1023-A04
Description: Black Sealant

Facility:
Location: West Side of Roof D Towards the Northern End of the Sidewall

Organic Fraction: 76.6 %
Gravimetrically Reduced Subsample: 23.4%

% Asbestos Detected:
None Detected

% Non-Asbestos Fibrous Material:
None Detected

% Non-Fibrous Material:
23.4 SiMg M+, Silicate
Other

Please refer to the Preface of this report for further information regarding your analysis.

Date Received: 10/9/2023
Date Analyzed: 10/27/2023
Signature:
Analyst: Craig Liska

Approved By:
Frank E. Ehrenfeld, III
Laboratory Director

Dated : 10/30/2023 11:07:21

iATL INTERNATIONAL
ASBESTOS TESTING LABORATORIES

9000 Commerce Parkway Suite B
Mt. Laurel, New Jersey 08054
Telephone: 856-231-9449
Email: customerservice@iatl.com

CERTIFICATE OF ANALYSIS

Client: HTRW, LLC
11471 Business Blvd., #773442
Anchorage AK 99577

Client: HTR114

Report Date: 10/27/2023
Report No.: 690764 - TEM NOB Rev #3, 10/30/2023
Project: Anchorage School District; College Gate ES Roof Replacement
Project No.: 2023-13

TEM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 7681358
Client No.: CG1023-A06
Description: Grey Sealant

Facility:
Location: Southeast Side of Roof C on Exhaust Fan

Organic Fraction: 93.3 %
Gravimetrically Reduced Subsample: 6.7%

% Asbestos Detected:
None Detected

% Non-Asbestos Fibrous Material:
None Detected

% Non-Fibrous Material:
6.7 Other

Please refer to the Preface of this report for further information regarding your analysis.

Date Received: 10/9/2023
Date Analyzed: 10/27/2023
Signature:
Analyst: Craig Liska

Approved By:
Frank E. Ehrenfeld, III
Laboratory Director

Dated : 10/30/2023 11:07:21

iATL INTERNATIONAL
ASBESTOS TESTING LABORATORIES

9000 Commerce Parkway Suite B
Mt. Laurel, New Jersey 08054
Telephone: 856-231-9449
Email: customerservice@iatl.com

CERTIFICATE OF ANALYSIS

Client:	HTRW, LLC	Report Date:	10/27/2023
	11471 Business Blvd., #773442	Report No.:	690764 - TEM NOB Rev #3, 10/30/2023
	Anchorage AK 99577	Project:	Anchorage School District; College Gate ES Roof Replacement
		Project No.:	2023-13
Client:	HTR114		

TEM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 7681368
Client No.: CG1023-A16
Description: Black Tar

Facility:
Location: From Roof Core 01 on South Side of Roof D

Organic Fraction: 99.9 %
Gravimetrically Reduced Subsample: 0.1%

% Asbestos Detected:	% Non-Asbestos Fibrous Material:	% Non-Fibrous Material:
None Detected	None Detected	0.1 Other

Insufficient material provided to verify results <100mg.

Please refer to the Preface of this report for further information regarding your analysis.

Date Received: 10/9/2023
Date Analyzed: 10/27/2023
Signature:
Analyst: Craig Liska

Approved By:
Frank E. Ehrenfeld, III
Laboratory Director

Dated : 10/30/2023 11:07:21

iATL INTERNATIONAL
ASBESTOS TESTING LABORATORIES

9000 Commerce Parkway Suite B
Mt. Laurel, New Jersey 08054
Telephone: 856-231-9449
Email: customerservice@iatl.com

CERTIFICATE OF ANALYSIS

Client: HTRW, LLC
11471 Business Blvd., #773442
Anchorage AK 99577

Client: HTR114

Report Date: 10/27/2023
Report No.: 690764 - TEM NOB Rev #3, 10/30/2023
Project: Anchorage School District; College Gate ES Roof Replacement
Project No.: 2023-13

TEM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 7681374
Client No.: CG1023-A22
Description: Black Sealant

Facility:
Location: Northeast Corner of Roof B

Organic Fraction: 80.6 %
Gravimetrically Reduced Subsample: 19.4%

% Asbestos Detected:
None Detected

% Non-Asbestos Fibrous Material:
None Detected

% Non-Fibrous Material:
19.4 SiMg M+, Silicate
Other

Please refer to the Preface of this report for further information regarding your analysis.

Date Received: 10/9/2023
Date Analyzed: 10/27/2023
Signature:
Analyst: Craig Liska

Approved By:
Frank E. Ehrenfeld, III
Laboratory Director

Dated : 10/30/2023 11:07:21

iATL INTERNATIONAL
ASBESTOS TESTING LABORATORIES

9000 Commerce Parkway Suite B
Mt. Laurel, New Jersey 08054
Telephone: 856-231-9449
Email: customerservice@iatl.com

CERTIFICATE OF ANALYSIS

Client: HTRW, LLC
11471 Business Blvd., #773442
Anchorage AK 99577

Client: HTR114

Report Date: 10/27/2023
Report No.: 690764 - TEM NOB Rev #3, 10/30/2023
Project: Anchorage School District; College Gate ES Roof Replacement
Project No.: 2023-13

TEM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 7681376
Client No.: CG1023-A24
Description: Black Sealant
% Asbestos Detected:
None Detected

Facility:
Location: Southeast Side of Roof B at VTR Penetration
% Non-Asbestos Fibrous Material:
None Detected

Organic Fraction: 83.6 %
Gravimetrically Reduced Subsample: 16.4%

% Non-Fibrous Material:
16.4 SiMg M+, Silicate
Other

Please refer to the Preface of this report for further information regarding your analysis.

Date Received: 10/9/2023
Date Analyzed: 10/27/2023
Signature:
Analyst: Craig Liska

Approved By:
Frank E. Ehrenfeld, III
Laboratory Director

Dated : 10/30/2023 11:07:22

iATL INTERNATIONAL
ASBESTOS TESTING LABORATORIES

9000 Commerce Parkway Suite B
Mt. Laurel, New Jersey 08054
Telephone: 856-231-9449
Email: customerservice@iatl.com

CERTIFICATE OF ANALYSIS

Client: HTRW, LLC
11471 Business Blvd., #773442
Anchorage AK 99577

Client: HTR114

Report Date: 10/27/2023
Report No.: 690764 - TEM NOB Rev #3, 10/30/2023
Project: Anchorage School District; College Gate ES Roof Replacement
Project No.: 2023-13

TEM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 7681413
Client No.: CG1023-A61
Description: White Sealant

Facility:
Location: From Northern Boiler Flue on Roof M

Organic Fraction: 35.8 %
Gravimetrically Reduced Subsample: 64.2%

% Asbestos Detected:
None Detected

% Non-Asbestos Fibrous Material:
None Detected

% Non-Fibrous Material:
64.2 Ti, Titanium Oxide
Other

Please refer to the Preface of this report for further information regarding your analysis.

Date Received: 10/9/2023
Date Analyzed: 10/27/2023
Signature:
Analyst: Craig Liska

Approved By:
Frank E. Ehrenfeld, III
Laboratory Director

Dated : 10/30/2023 11:07:22

iATL INTERNATIONAL
ASBESTOS TESTING LABORATORIES

9000 Commerce Parkway Suite B
Mt. Laurel, New Jersey 08054
Telephone: 856-231-9449
Email: customerservice@iatl.com

CERTIFICATE OF ANALYSIS

Client: HTRW, LLC
11471 Business Blvd., #773442
Anchorage AK 99577

Client: HTR114

Report Date: 10/27/2023
Report No.: 690764 - TEM NOB Rev #3, 10/30/2023
Project: Anchorage School District; College Gate ES Roof Replacement
Project No.: 2023-13

TEM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 7681420
Client No.: CG1023-A68
Description: Black Tar

Facility:
Location: From Mechanical Hood on West Side of Roof G

Organic Fraction: 91.9 %
Gravimetrically Reduced Subsample: 8.1%

% Asbestos Detected:	% Non-Asbestos Fibrous Material:	% Non-Fibrous Material:
7.7 Chrysotile	None Detected	0.4 Other

Please refer to the Preface of this report for further information regarding your analysis.

Date Received: 10/9/2023
Date Analyzed: 10/27/2023
Signature:
Analyst: Craig Liska

Approved By:
Frank E. Ehrenfeld, III
Laboratory Director

Dated : 10/30/2023 11:07:22

iATL INTERNATIONAL
ASBESTOS TESTING LABORATORIES

9000 Commerce Parkway Suite B
Mt. Laurel, New Jersey 08054
Telephone: 856-231-9449
Email: customerservice@iatl.com

CERTIFICATE OF ANALYSIS

Client: HTRW, LLC
11471 Business Blvd., #773442
Anchorage AK 99577

Client: HTR114

Report Date: 10/27/2023
Report No.: 690764 - TEM NOB Rev #3, 10/30/2023
Project: Anchorage School District; College Gate ES Roof Replacement
Project No.: 2023-13

TEM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 7681426
Client No.: CG1023-A74
Description: Grey Sealant
Facility:
Location: Inside of Roof Drain Bowl on the Southeast Side of Roof J
Organic Fraction: 73.1 %
Gravimetrically Reduced Subsample: 26.9%

% Asbestos Detected:	% Non-Asbestos Fibrous Material:	% Non-Fibrous Material:
None Detected	None Detected	26.9 Other

Lab No.: 7681427
Client No.: CG1023-A75
Description: Black Sealant
Facility:
Location: Southeast Side of Roof J at VTR Penetration
Organic Fraction: 81.3 %
Gravimetrically Reduced Subsample: 18.7%

% Asbestos Detected:	% Non-Asbestos Fibrous Material:	% Non-Fibrous Material:
None Detected	Trace SiAl, Other Fiber	18.7 Other

Lab No.: 7681428
Client No.: CG1023-A76
Description: Black Sealant
Facility:
Location: East Side of Roof J From Southern End of Sidewall
Organic Fraction: 70.7 %
Gravimetrically Reduced Subsample: 29.3%

% Asbestos Detected:	% Non-Asbestos Fibrous Material:	% Non-Fibrous Material:
None Detected	None Detected	29.3 Other

Please refer to the Preface of this report for further information regarding your analysis.

Date Received: 10/9/2023
Date Analyzed: 10/27/2023
Signature:
Analyst: Craig Liska

Approved By:
Frank E. Ehrenfeld, III
Laboratory Director

Dated : 10/30/2023 11:07:22

iATL INTERNATIONAL
ASBESTOS TESTING LABORATORIES

9000 Commerce Parkway Suite B
Mt. Laurel, New Jersey 08054
Telephone: 856-231-9449
Email: customerservice@iatl.com

CERTIFICATE OF ANALYSIS

Client: HTRW, LLC
11471 Business Blvd., #773442
Anchorage AK 99577

Client: HTR114

Report Date: 10/27/2023
Report No.: 690764 - TEM NOB Rev #3, 10/30/2023
Project: Anchorage School District; College Gate ES Roof Replacement
Project No.: 2023-13

TEM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 7681470
Client No.: CG1023-A118
Description: Grey Putty
% Asbestos Detected:
None Detected

Facility:
Location: East Side of Roof F at Large Conduit With a Bundle of Cables Sticking Out of the Top
% Non-Asbestos Fibrous Material:
None Detected

Organic Fraction: 35.6 %
Gravimetrically Reduced Subsample: 64.4%
% Non-Fibrous Material:
64.4 Other

Please refer to the Preface of this report for further information regarding your analysis.

Date Received: 10/9/2023
Date Analyzed: 10/27/2023
Signature:
Analyst: Craig Liska

Approved By:
Frank E. Ehrenfeld, III
Laboratory Director

Dated : 10/30/2023 11:07:22

iATL INTERNATIONAL
ASBESTOS TESTING LABORATORIES

9000 Commerce Parkway Suite B
Mt. Laurel, New Jersey 08054
Telephone: 856-231-9449
Email: customerservice@iatl.com

CERTIFICATE OF ANALYSIS

Client:	HTRW, LLC	Report Date:	10/27/2023
	11471 Business Blvd., #773442	Report No.:	690764 - TEM NOB
	Anchorage AK 99577	Project:	Anchorage School District; College Gate ES Roof Replacement
		Project No.:	2023-13
Client:	HTR114		

Appendix to Analytical Report:

Customer Contact: Chris Ottosen
Analysis: ELAP Section 198.4

This appendix seeks to promote greater understanding of any observations, exceptions, special instructions, or circumstances that the laboratory needs to communicate to the client concerning the above samples. The information below is used to help promote your ability to make the most informed decisions for you and your customers. Please note the following points of contact for any questions you may have.

iATL Customer Service: customerservice@iatl.com
iATL Office Manager: wchampion@iatl.com
iATL Account Representative: House Account
Sample Login Notes: See Batch Sheet Attached
Sample Matrix: Bulk material, Non-Friable Organically Bound material such as VSF, FT, M, RM, Tar, CB, Shingle, Tar Paper, Caulk, Glazing
Exceptions Noted: See Following Pages

General Terms, Warrants, Limits, Qualifiers:

General information about iATL capabilities and client/laboratory relationships and responsibilities are spelled out in iATL policies that are listed at www.iATL.com and in our Quality Assurance Manual per ISO 17025 standard requirements. The information therein is a representation of iATL definitions and policies for turnaround times, sample submittal, collection media, blank definitions, quantification issues and limit of detection, analytical methods and procedures, sub-contracting policies, results reporting options, fees, terms, and discounts, confidentiality, sample archival and disposal, and data interpretation.

iATL warrants the test results to be of a precision normal for the type and methodology employed for each sample submitted. iATL disclaims any other warrants, expressed or implied, including warranty of fitness for a particular purpose and warranty of merchantability. iATL accepts no legal responsibility for the purpose for which the client uses test results. Any analytical work performed must be governed by our Standard Terms and Conditions. Prices, methods and detection limits may be changed without notification. Please contact your Customer Service Representative for the most current information.

This confidential report relates only to those item(s) tested and does not represent an endorsement by NIST-NVLAP, AIHA LAP LLC, or any agency of local, state or province governments nor of any agency of the U.S. government.

This report shall not be reproduced except in full, without written approval of the laboratory.

Information Pertinent to this Report:

Analysis by ELAP Section 198.4

Certifications:

- NIST-NVLAP No. 101165-0
- NYSDOH-ELAP No. 11021
- AIHA-LAP, LLC No. 100188

All results are based on the samples as received at the lab. iATL assumes that appropriate sampling methods have been used and that the data upon which these results are based have been accurately supplied by the client.

The "Gravimetrically Reduced Subsample" is the portion of the submitted sample remaining following the ashing and acid treatment processes. TEM analysis occurs on this portion of the sample.

Final results are calculated to represent the sample as submitted. Results are verifiable for only those operations and analyses performed in the laboratory.

9000 Commerce Parkway Suite B
Mt. Laurel, New Jersey 08054
Telephone: 856-231-9449
Email: customerservice@iatl.com

CERTIFICATE OF ANALYSIS

Client:	HTRW, LLC	Report Date:	10/27/2023
	11471 Business Blvd., #773442	Report No.:	690764 - TEM NOB
	Anchorage AK 99577	Project:	Anchorage School District; College Gate ES Roof Replacement
		Project No.:	2023-13
Client:	HTR114		

Disclaimers / Qualifiers:

There may be some samples in this project that have a "NOTE:" associated with a sample result. We use added disclaimers or qualifiers to inform the client about something that requires further explanation. Here is a complete list with highlighted disclaimers pertinent to this project. For a full explanation of these and other disclaimers, please inquire at **customerservice@iatl.com.**

(1)Note: Sample not analyzed.
(2)Note: Sample not analyzed at request of client.
(3)Note: Sample analysis terminated. Clearance criteria exceeded (average >70.0 s/mm²). Set fails by AHERA 40 CFR 763.
(4)Note: Heavy loading (>0.1 s/cc) of non-asbestos particulate that might prohibit the required morphological, diffraction and elemental identification of asbestos. The absence of asbestos on the sample can not be concluded. Analysis for informational purposes only.
(5)Note: Heavy loading (>10% per grid opening) non-fibrous particulate. Sample analysis terminated. Clearance criteria exceeded (>10%). Sample voided by AHERA 40 CFR 763.
(5A)Note: Heavy loading (>25% per grid opening) non-fibrous particulate. Sample analysis terminated. Clearance criteria exceeded (>25%). Sample voided by NIOSH 7402.
(6)Note: Sample turbidity >1.0 NTU. Therefore MDL >> 0.1 MFL. Does not meet National Primary Drinking Water Standards.
(7)Note: Sample integrity compromised. Received sample cassette with top open (40 CFR 763 c-e).
(8)Note: Received sample cassettes with portion of filter missing. "PCM re-prep"
(9)Note: Void - overloaded, unable to prep.
(10)Note: Void - filter damaged.
(11)Note: No volume supplied.
(12)Note: Heavy loading (>0.1 s/cc) of non-asbestos / non-fibrous particulate.
(13)Note: Method analytical sensitivity of <0.003 s/cc not attained due to volume of air sampled. NIOSH requires a minimum of 400L.
(13A)Note: Volume does not meet AHERA requirements.(<1188 L)
(14)Note: Geometric Mean = 0.xxxx Structures/cc
(15)Note: Samples received on 0.8 micron PCM filters. Samples must be submitted on 0.45 micron filter cassettes per AHERA guidelines
(18)Note: *Results are for informational purposes only. Samples received on 0.8um PCM cassettes. Per AHERA 40 CFR 763 guidelines samples must be obtained on a 0.45um cassette.
(TEM NOB 1) Note: The above result represents only the analysis of NOB-residue submitted from the client.
(TEM NOB 2) Note: Insufficient material (<100mg) to verify results.

HTRW, LLC

CHAIN OF CUSTODY

003664938

11471 Business Blvd., #773442
Eagle River, Alaska 99577
(907)-917-3801

Project Number	*2023-13*					**Selected Laboratory**	*iATL*
Project Name	*Anchorage School District RFP 2023-619 Design Services: College Gate Elementary School Roof Replacement*					**Shipping Method**	*FedEx, 7766 2081 9594*
Address/Location	*3101 Sunflower Street, Anchorage, Alaska 99508*					**Date and Time**	*05/30/2024, 10:00 AM*
Client	*RIM Architects, LLC*					**Samples Received By**	RECEIVED
Inspector/Collected By	*Christopher T. Ottosen*					**Date and Time**	
EPA B.I.# and State	*TBI4-124-18714/Alaska*					**Analyst Signature(s)**	MAY 31 2024
Collection Date	*05/28-29/2024*	**Quantity**	*66*	**Turnaround**	*5-Day*		
Requested Analysis	*Asbestos Bulk by PLM, EPA Method 600, R93-116*						iATL - BY
Special Notes	*E-mail results to cottosen@htrw-llc.com. Provide a scanned color copy of this chain of custody or return the original hard copies. Do not analyze wood, paint, or foam or perform composite analysis of gypsum wall board and joint compound unless specifically asked for in the sample description.*						

SAMPLE NUMBER	SAMPLE DESCRIPTION	SAMPLE LOCATION	PHOTO REFERENCE	LAB SAMPLE ID
CG0524-A01	Vinyl-covered gypsum wall board: L1: Beige vinyl-like covering L2: Off-white gypsum board	Above door on the northwest side of Book Room 44	146	
CG0524-A02	L1: (LCT1) Lay-in ceiling tile, 2' x 4' with false 2' x 2' appearance, beveled edges, and 1/16"-1/8" wide x 1/8"-1/2" oblong fissures and 1/16" holes, most common lay-in ceiling tile observed in building	Southeast side of Corridor 420 near entrance to Book Room 44	148	
CG0524-A03	L1: Dark grey putty used on the seams of the corrugated metal roof deck	Loose on top of lay-in ceiling tiles at the southeast side of Corridor 420 near entrance to Book Room 44	152	
CG0524-A04	L1: White joint compound	Southeast side of Corridor 420 above the door to Book Room 44	149	
CG0524-A05	L1: Brown wood fiber-like sound insulating board L2: Dark brown mastic used on the surface of the sound insulating board	Southeast side of Corridor 420 above the door to Book Room 44	149	
CG0524-A06	L1: Hard semi-pliable sealant used to adhere LCT1 from sample CG0524-02 to the metal ceiling grid **DO NOT ANALYZE LAY-IN CEILING TILE IN THIS SAMPLE**	Southeast side of Corridor 420 near entrance to Book Room 44	155	

Page 1 of 7

2023-13-PLM-COC-24-05-28

HTRW, LLC

CHAIN OF CUSTODY

003664938

11471 Business Blvd., #773442
Eagle River, Alaska 99577
(907)-917-3801

SAMPLE NUMBER	SAMPLE DESCRIPTION	SAMPLE LOCATION	PHOTO REFERENCE	LAB SAMPLE ID
CG0524-A07	L1: Semi-pliable light grey sealant used on the seams of the metal flashing on the top of the exterior precast concrete walls	South exterior of Vestibule 430	166	
CG0524-A08	L1: Spongy light grey sealant used on the corner seams between the exterior precast concrete walls where there are changes in direction of the wall panels	South exterior of Vestibule 430	168	
CG0524-A09	L1: Semi-pliable light grey sealant used between precast concrete wall panel seams on "runs" (i.e. not at the edges/where there are changes in direction)	South exterior of Classroom 43	169	
CG0524-A10	L1: Dark grey-green "puck" mastic that appears to have been used to adhere the former gypsum board soffit to the remaining sound insulating board L2: Brown wood fiber-like sound insulating board	Southeast side of Corridor 410 on exposed sound insulating board above the lay-in ceiling	187	
CG0524-A11	L1: (DSS1) Hard slightly pliable grey-green sealant used on the seams of ductwork/HVAC systems in the building installed during the 1995 Additions and Renovations project	Southeast side of Corridor 410 on large supply air duct above the lay-in ceiling	186	
CG0524-A12	L1: (LCT1) Lay-in ceiling tile, 2' x 4' with false 2' x 2' appearance, beveled edges, and 1/16"-1/8" wide x 1/8"-1/2" oblong fissures and 1/16" holes, most common lay-in ceiling tile observed in building	West side of Classroom 42	208	
CG0524-A13	L1: (LCT2) Lay-in ceiling tile, 2' x 4' with false 2' x 2' appearance, beveled edges, and textured surface, common lay-in tile observed in the administrative areas	West side of Workroom 53	255	
CG0524-A14	L1: White joint compound	South wall of Workroom 53 above the lay-in ceiling	256	
CG0524-A15	L1: White gypsum board	South wall of Workroom 53 above the lay-in ceiling	256	
CG0524-A16	L1: (DSS2) Hard semi-pliable dark grey sealant used on the seams of some ductwork/HVAC systems in the building installed during the 2005 Mechanical Upgrades project	West side of Workroom 53 on ductwork above lay-in ceiling	257	
CG0524-A17	L1: (DSS1) Hard slightly pliable grey-green sealant used on the seams of ductwork/HVAC systems in the building installed during the 1995 Additions and Renovations project	West side of Workroom 53 smeared onto joist below the ductwork above the lay-in ceiling	258	

2023-13-PLM-COC-24-05-28

HTRW, LLC

CHAIN OF CUSTODY

003664938

11471 Business Blvd., #773442
Eagle River, Alaska 99577
(907)-917-3801

SAMPLE NUMBER	SAMPLE DESCRIPTION	SAMPLE LOCATION	PHOTO REFERENCE	LAB SAMPLE ID
CG0524-A18	L1: (LCT3) Lay-in ceiling tile, 2' x 4' with 1/8"-3/16" oblong holes and 1/16" holes, lay-in tile observed in Corridors 625, 650, and 750 and some vestibules	Southwest side of Corridor 625 near entrance to Library 61	273	
CG0524-A19	L1: Dark brown mastic used between layers of vinyl-covered gypsum wall board L2: Green mastic used between layers of vinyl-covered gypsum wall board **DO NOT ANALYZE PAPER OF GYPSUM BOARD IN THIS SAMPLE**	Above the lay-in ceiling on the southwest side of Corridor 625 near entrance to Library 61	278	
CG0524-A20	Vinyl-covered gypsum wall board: L1: Beige vinyl-like covering L2: Off-white gypsum board	Above the lay-in ceiling on the southwest side of Corridor 625 near entrance to Library 61	278	
CG0524-A21	L1: (LCT3) Lay-in ceiling tile, 2' x 4' with 1/8"-3/16" oblong holes and 1/16" holes, lay-in tile observed in Corridors 625, 650, and 750 and some vestibules	Southeast side of Corridor 750 above doors	305	
CG0524-A22	L1: (LCT1) Lay-in ceiling tile, 2' x 4' with false 2' x 2' appearance, beveled edges, and 1/16"-1/8" wide x 1/8"-1/2" oblong fissures and 1/16" holes, most common lay-in ceiling tile observed in building	Northeast side of Classroom 65	318	
CG0524-A23	L1: Pliable tan mastic used to adhere lay-in ceiling grid perimeter "L" channels to substrates	Northwest side of Classroom 65 above lay-in ceiling on exterior wall	325	
CG0524-A24	L1: Hard dark brown mastic used to adhere lay-in ceiling grid perimeter "L" channels to substrates	Northwest side of Classroom 65 above lay-in ceiling on exterior wall	325	
CG0524-A25	L1: (LCT4) Lay-in ceiling tile, 2' x 4' with 1/8"-3/16" wide x 1/4"-1/2" fissures and 1/64"-1/16" holes, lay-in tile observed in Vestibule 67A	North side of Vestibule 67A	342	
CG0524-A26	L1: Hard brittle/crispy brown-orange "puck" mastic used to adhere smooth-faced hardwood paneling to underlying rigid green foam insulation **DO NOT ANALYZE GREEN FOAM**	East wall of Boiler Room 74 next to door	387	
CG0524-A27	L1: Hard brittle/crispy dark grey "puck" mastic used to adhere rigid green foam insulation to underlying precast concrete wall panel substrate **DO NOT ANALYZE GREEN FOAM**	East wall of Boiler Room 74 next to door	388	
CG0524-A28	L1: Dark grey putty used on the seams of the corrugated metal roof deck	South side of Boiler Room 74 next to roof hatch	395	
CG0524-A29	L1: Light beige cementitious mortar-like coating on precast concrete wall panel	Northwest side of Boiler Room 74	385	

Page 3 of 7

2023-13-PLM-COC-24-05-28

HTRW, LLC

CHAIN OF CUSTODY

003664938

11471 Business Blvd., #773442
Eagle River, Alaska 99577
(907)-917-3801

SAMPLE NUMBER	SAMPLE DESCRIPTION	SAMPLE LOCATION	PHOTO REFERENCE	LAB SAMPLE ID
	L1: Grey concrete from the precast concrete wall panels L2: Black high-density foam backer rod			
CG0524-A30	L3: Light grey sealant used between precast concrete wall panel seams on "runs" (i.e. not at the edges/where there are changes in direction)	Northwest side of Boiler Room 74	386	
CG0524-A31	L1: (LCT5) Lay-in ceiling tile, 2' x 4' fiberglass lay-in tile with vinyl-like facing, observed in the Kitchen	North side of Kitchen 68A above door	405	
CG0524-A32	L1: (LCT1) Lay-in ceiling tile, 2' x 4' with false 2' x 2' appearance, beveled edges, and 1/16"-1/8" wide x 1/8"-1/2" oblong fissures and 1/16" holes, most common lay-in ceiling tile observed in building	Southeast side of Classroom 37	430	
CG0524-A33	L1: White joint compound	Southeast side of Classroom 37 on south wall above lay-in ceiling	429	
CG0524-A34	L1: Remnant beige material on 90 degree elbow on VTR piping	Southeast side of Classroom 37 on VTR piping above lay-in ceiling	427	
CG0524-A35	L1: Dark grey penetration putty used at conduit penetration thru sheet metal duct	On relief air duct above the lay-in ceiling in Corridor 300 near the entrance to Fan Room 38	443	
CG0524-A36	L1: Brown crispy/brittle "puck" mastic remnant	Exposed above the door on the east wall of Fan Room 38	444	
CG0524-A37	L1: Clear/green silicone-like sealant used on seams of the sheet metal roof of the "Raven House"	Southwest side of roof	497	
CG0524-A38	L1: Dark grey compound used between the stained glass windows and wood retainers on the "Raven House"	South side of the structure	499	
CG0524-A39	L1: Hard but flexible panel with white chalky surface and clear interior	South side of the roof	498	
CG0524-A40	L1: Hard brittle/crispy dark grey-brown "puck" mastic used to adhere rigid green foam insulation to underlying precast concrete wall panel substrate **DO NOT ANALYZE GREEN FOAM**	Northeast side of Corridor 220 above lay-in ceiling	505	
CG0524-A41	L1: Beige manufactured hardboard with off-white interior used on exterior fascia and soffit panels	South exterior of Vestibule 710 at damaged area of fascia panel	566	
CG0524-A42	L1: (LCT6) Lay-in ceiling tile, 2' x 4' with false 2' x 2' appearance, beveled edges, and 1/16" wide x 1/8"-1/4" densely packed fissures and densely packed 1/16" holes, common lay-in tile in Corridor 675 and as a replacement tile scattered throughout the school	Southwest side of Corridor 675 above the double doors	571	

2023-13-PLM-COC-24-05-28

HTRW, LLC

CHAIN OF CUSTODY

003664938

11471 Business Blvd., #773442
Eagle River, Alaska 99577
(907)-917-3801

SAMPLE NUMBER	SAMPLE DESCRIPTION	SAMPLE LOCATION	PHOTO REFERENCE	LAB SAMPLE ID
	L1: (LCT7) Lay-in ceiling tile, 2' x 4' with false 2' x 2' appearance, beveled edges, and 1/8"-3/16" oblong holes and 1/16"-1/8" holes, common in corridors and vestibules surrounding the administrative area and as a replacement tile scattered throughout the school			
CG0524-A43		Northwest side of Corridor 675	572	
CG0524-A44	L1: (LCT7) Lay-in ceiling tile, 2' x 4' with false 2' x 2' appearance, beveled edges, and 1/8"-3/16" oblong holes and 1/16"-1/8" holes, common in corridors and vestibules surrounding the administrative area and as a replacement tile scattered throughout the school	Near center of Corridor 320	573	
CG0524-A45	L1: (LCT6) Lay-in ceiling tile, 2' x 4' with false 2' x 2' appearance, beveled edges, and 1/16" wide x 1/8"-1/4" densely packed fissures and densely packed 1/16" holes, common lay-in tile in Corridor 675 and as a replacement tile scattered throughout the school	North side of Corridor 220	574	
CG0524-A46	L1: (LCT6) Lay-in ceiling tile, 2' x 4' with false 2' x 2' appearance, beveled edges, and 1/16" wide x 1/8"-1/4" densely packed fissures and densely packed 1/16" holes, common lay-in tile in Corridor 675 and as a replacement tile scattered throughout the school	North side of Corridor 200	575	
CG0524-A47	L1: (LCT7) Lay-in ceiling tile, 2' x 4' with false 2' x 2' appearance, beveled edges, and 1/8"-3/16" oblong holes and 1/16"-1/8" holes, common in corridors and vestibules surrounding the administrative area and as a replacement tile scattered throughout the school	West side of Vestibule 610	576	
CG0524-A48	L1: White joint compound	Northeast side of Central Storage 66 from above ceiling at fire sprinkler penetration	594	
CG0524-A49	L1: White gypsum board	Northeast side of Central Storage 66 from above ceiling at fire sprinkler penetration	594	
CG0524-A50	L1: (LCT1) Lay-in ceiling tile, 2' x 4' with false 2' x 2' appearance, beveled edges, and 1/16"-1/8" wide x 1/8"-1/2" oblong fissures and 1/16" holes, most common lay-in ceiling tile observed in building	Near center of Corridor 720	595	
CG0524-A51	L1: White joint compound	Southeast corner of Electrical Room 73	627	
CG0524-A52	L1: White gypsum board	At hole in east wall above door in Mechanical 72	629	
CG0524-A53	L1: White joint compound	East wall of Classroom 16 above the lay-in ceiling	641	

2023-13-PLM-COC-24-05-28

HTRW, LLC

CHAIN OF CUSTODY

003664938

11471 Business Blvd., #773442
Eagle River, Alaska 99577
(907)-917-3801

SAMPLE NUMBER	SAMPLE DESCRIPTION	SAMPLE LOCATION	PHOTO REFERENCE	LAB SAMPLE ID
CG0524-A54	L1: White gypsum board	East wall of Classroom 16 above the lay-in ceiling	641	
CG0524-A55	L1: (LCT1) Lay-in ceiling tile, 2' x 4' with false 2' x 2' appearance, beveled edges, and 1/16"-1/8" wide x 1/8"-1/2" oblong fissures and 1/16" holes, most common lay-in ceiling tile observed in building	East side of Classroom 16 near the double doors	642	
CG0524-A56	L1: White joint compound	West side of Classroom 15 at water damaged area of gypsum board above the lay-in ceiling	645	
CG0524-A57	L1: White gypsum board	West side of Classroom 15 at water damaged area of gypsum board above the lay-in ceiling	645	
CG0524-A58	L1: (LCT2) Lay-in ceiling tile, 2' x 4' with false 2' x 2' appearance, beveled edges, and textured surface, common lay-in tile observed in the administrative areas (this tile was the only "outlier" observed)	West side of Classroom 15	649	
CG0524-A59	L1: (DSS1) Hard slightly pliable grey-green sealant used on the seams of ductwork/HVAC systems in the building installed during the 1995 Additions and Renovations project	East side of Classroom 15 on the bottom of the relief air duct	655	
CG0524-A60	L1: White joint compound	South wall of C102 at rain leader pipe penetration thru gypsum board wall	666	
CG0524-A61	L1: White gypsum board	South wall of C102 at rain leader pipe penetration thru gypsum board wall	666	
CG0524-A62	L1: (LCT1) Lay-in ceiling tile, 2' x 4' with false 2' x 2' appearance, beveled edges, and 1/16"-1/8" wide x 1/8"-1/2" oblong fissures and 1/16" holes, most common lay-in ceiling tile observed in building	South side of C102 at water damaged lay-in tile	664	
CG0524-A63	L1: Dark grey-green "puck" mastic that appears to have been used to adhere the former gypsum board soffit to the remaining sound insulating board L2: Brown wood fiber-like sound insulating board	North side of Corridor 310 on exposed sound insulating board above the lay-in ceiling	470	
CG0524-A64	L1: (DSS3) Hard tan sealant used between the duct flanges and heating coils in the original construction	Near center of Corridor 410 above lay-in ceiling	677	
CG0524-A65	L1: Yellow semi-pliable mastic used to adhere fiberglass insulation to the outside of ductwork from the original construction	Northwest side of Fan Room 63A at air intake duct near roof deck	688	

Page 6 of 7

2023-13-PLM-COC-24-05-28

HTRW, LLC

CHAIN OF CUSTODY

003664938

11471 Business Blvd., #773442
Eagle River, Alaska 99577
(907)-917-3801

SAMPLE NUMBER	SAMPLE DESCRIPTION	SAMPLE LOCATION	PHOTO REFERENCE	LAB SAMPLE ID
CG0524-A66	L1: (DSS2) Hard semi-pliable dark grey sealant used on the seams of some ductwork/HVAC systems in the building installed during the 2005 Mechanical Upgrades project	Southwest side of Fan Room 63A at return air duct connection to older ductwork	689	
--END--				

Page 7 of 7

2023-13-PLM-COC-24-05-28



After printing this label:
1. Use the 'Print' button on this page to print your label to your laser or inkjet printer.
2. Fold the printed page along the horizontal line.
3. Place label in shipping pouch and affix it to your shipment so that the barcode portion of the label can be read and scanned.

Warning: Use only the printed original label for shipping. Using a photocopy of this label for shipping purposes is fraudulent and could result in additional billing charges, along with the cancellation of your FedEx account number.
Use of this system constitutes your agreement to the service conditions in the current FedEx Service Guide, available on fedex.com.FedEx will not be responsible for any claim in excess of $100 per package, whether the result of loss, damage, delay, non-delivery,misdelivery,or misinformation, unless you declare a higher value, pay an additional charge, document your actual loss and file a timely claim.Limitations found in the current FedEx Service Guide apply. Your right to recover from FedEx for any loss, including intrinsic value of the package, loss of sales, income interest, profit, attorney's fees, costs, and other forms of damage whether direct, incidental,consequential, or special is limited to the greater of $100 or the authorized declared value. Recovery cannot exceed actual documented loss.Maximum for items of extraordinary value is $1,000, e.g. jewelry, precious metals, negotiable instruments and other items listed in our ServiceGuide. Written claims must be filed within strict time limits, see current FedEx Service Guide.

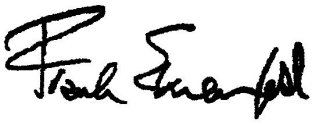
eurofins | Built Environment Testing
iATL

Report for:

Chris Ottosen, Viv Ottosen
HTRW, LLC
11471 Business Blvd
#773442
Eagle River, AK 99577

Regarding: Eurofins EPK Built Environment Testing, LLC
Project: 2023-13 - Anchorage School District RFP 2023-619
EML ID: 3664938

Approved by:



Approved Signatory
Frank Ehrenfeld

REVISED REPORT

Dates of Analysis:
Asbestos PLM (Layer %): 06-06-2024 to 06-10-2024

Service SOPs: Asbestos PLM (Layer %) (EPA 40CFR App E to Sub E of Part 763 & EPA METHOD 600/R-93-116, SOP EM-AS-S-1267)

All samples were received in acceptable condition unless noted in the Report Comments portion in the body of the report. The results relate only to the samples as received and tested. The results include an inherent uncertainty of measurement associated with estimating percentages by polarized light microscopy. Measurement uncertainty data for sample results with >1% asbestos concentration can be provided when requested.

Eurofins EPK Built Environment Testing, LLC ("the Company"), a member of the Eurofins Built Environment Testing group of companies, shall have no liability to the client or the client's customer with respect to decisions or recommendations made, actions taken or courses of conduct implemented by either the client or the client's customer as a result of or based upon the Test Results. In no event shall the Company be liable to the client with respect to the Test Results except for the Company's own willful misconduct or gross negligence nor shall the Company be liable for incidental or consequential damages or lost profits or revenues to the fullest extent such liability may be disclaimed by law, even if the Company has been advised of the possibility of such damages, lost profits or lost revenues. In no event shall the Company's liability with respect to the Test Results exceed the amount paid to the Company by the client therefor.

Eurofins EPK Built Environment Testing, LLC
9000 Commerce Parkway, Suite B, Mount Laurel, NJ 08054
(856) 231-9449 www.eurofinsus.com/Built

Client: HTRW, LLC
C/O: Chris Ottosen, Viv Ottosen
Re: 2023-13 - Anchorage School District RFP 2023-619

Date of Receipt: 05-31-2024
Date of Report: 06-10-2024

ASBESTOS PLM REPORT

Sample # . Layer # Lab-ID version‡	Homogeneity	Layer Description	Non-Asbestos Content	Asbestos Content	QC*	Comment
CG0524-A01.Layer 1 17956119-1	Good	Off-White Non-Fibrous Material -covering material	99% Non-Fibrous Material 1% Cellulose	ND	X	
CG0524-A01.Layer 2 17956119-1	Good	Tan Drywall -no joint compound	90% Non-Fibrous Material 10% Cellulose	ND	X	
CG0524-A02.Layer 1 17956120-1	Good	Tan Ceiling Tile	43% Non-Fibrous Material 40% Cellulose 17% Glass Fibers	ND		
CG0524-A03.Layer 1 17956121-1	Good	Black Putty	98% Non-Fibrous Material	2% Chrysotile		A
CG0524-A04.Layer 1 17956122-1	Good	White Joint Compound	100% Non-Fibrous Material	ND		
CG0524-A05.Layer 1 17956123-1	Moderate	Beige Wallboard	100% Cellulose	ND		
CG0524-A05.Layer 2 17956123-1	Good	Brown Mastic	98% Non-Fibrous Material 2% Cellulose	ND		
CG0524-A06.Layer 1 17956124-1	Good	White Sealant	99% Non-Fibrous Material 1% Glass Fibers	ND		
CG0524-A07.Layer 1 17956125-1	Good	Gray/ Blue Caulk	100% Non-Fibrous Material	ND		
CG0524-A08.Layer 1 17956126-1	Good	Gray Sealant	100% Non-Fibrous Material	ND		
CG0524-A09.Layer 1 17956127-1	Good	Gray Sealant	100% Non-Fibrous Material	ND		
CG0524-A10.Layer 1 17956128-1	Good	Gray Mastic	100% Non-Fibrous Material	ND		
CG0524-A10.Layer 2 17956128-1	Good	Beige Insulation	100% Cellulose	ND		
CG0524-A11.Layer 1 17956129-1	Good	Green Sealant	100% Non-Fibrous Material	ND		
CG0524-A12.Layer 1 17956130-1	Good	Tan Ceiling Tile	45% Cellulose 35% Non-Fibrous Material 20% Glass Fibers	ND		
CG0524-A13.Layer 1 17956131-1	Good	Tan Ceiling Tile	45% Cellulose 35% Non-Fibrous Material 20% Glass Fibers	ND		
CG0524-A14.Layer 1 17956132-1	Good	White Joint Compound	100% Non-Fibrous Material	ND		
CG0524-A15.Layer 1 17956133-1	Good	Tan Drywall	80% Non-Fibrous Material 20% Cellulose	ND		
CG0524-A16.Layer 1 17956134-1	Good	Gray Sealant	100% Non-Fibrous Material	ND		

Comments: A) 4/205x100=2%

* Marked layers were selected for reanalysis in additional internal quality control processes, which included the evaluation and comparison of associated data.

The total percentage of sample components shown may be greater than 100% when some components are detected at <1%.

The test report shall not be reproduced except in full, without written approval of the laboratory. The report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the federal government. The Company reserves the right to dispose of all samples after a period of thirty (30) days, according to all state and federal guidelines, unless otherwise specified. Inhomogeneous samples are separated into homogeneous subsamples and analyzed individually. ND means no fibers of that type were detected. When detected, the minimum detection and reporting limit is less than 1% unless point counting is performed. Floor tile samples may contain large amounts of interference material and it is recommended that the sample be analyzed by gravimetric point count analysis to lower the detection limit and to aid in asbestos identification.

‡ A "Version" indicated by -"x" after the Lab ID# with a value greater than 1 indicates a sample with amended data. The revision number is reflected by the value of "x".

Eurofins EPK Built Environment Testing, LLC
9000 Commerce Parkway, Suite B, Mount Laurel, NJ 08054
(856) 231-9449 www.eurofinsus.com/Built

Client: HTRW, LLC
C/O: Chris Ottosen, Viv Ottosen
Re: 2023-13 - Anchorage School District RFP 2023-619

Date of Receipt: 05-31-2024
Date of Report: 06-10-2024

ASBESTOS PLM REPORT

Sample # . Layer # Lab-ID version‡	Homogeneity	Layer Description	Non-Asbestos Content	Asbestos Content	QC*	Comment
CG0524-A17.Layer 1 17956135-1	Good	Green Sealant	100% Non-Fibrous Material	ND		
CG0524-A18.Layer 1 17956136-1	Good	Tan Ceiling Tile	40% Cellulose 40% Non-Fibrous Material 20% Glass Fibers	ND		
CG0524-A19.Layer 1 17956137-1	Good	Brown Mastic	100% Non-Fibrous Material	ND		
CG0524-A19.Layer 2 17956137-1	Good	Green Mastic	100% Non-Fibrous Material	ND		
CG0524-A20.Layer 1 17956138-1	Good	Off-White Non-Fibrous Material - covering material	100% Non-Fibrous Material	ND		
CG0524-A20.Layer 2 17956138-1	Good	Tan Drywall	80% Non-Fibrous Material 20% Cellulose	ND		
CG0524-A21.Layer 1 17956139-1	Good	Tan Ceiling Tile	45% Cellulose 35% Non-Fibrous Material 20% Glass Fibers	ND		
CG0524-A22.Layer 1 17956140-1	Good	Tan Ceiling Tile	48% Non-Fibrous Material 45% Cellulose 7% Glass Fibers	ND		
CG0524-A23.Layer 1 17956141-1	Good	Tan Mastic	100% Non-Fibrous Material	ND		
CG0524-A24.Layer 1 17956142-1	Good	Brown Mastic	100% Non-Fibrous Material	< 1% Chrysotile		A
CG0524-A25.Layer 1 17956143-1	Good	Tan Ceiling Tile	45% Cellulose 35% Non-Fibrous Material 20% Glass Fibers	ND		
CG0524-A26.Layer 1 17956144-1	Good	Orange Mastic	100% Non-Fibrous Material	< 1% Chrysotile	X	A
CG0524-A27.Layer 1 17956145-1	Good	Gray Mastic	100% Non-Fibrous Material	< 1% Chrysotile	X	B
CG0524-A28.Layer 1 17956146-1	Good	Gray Putty	90% Non-Fibrous Material	10% Chrysotile	X	
CG0524-A29.Layer 1 17956147-1	Good	Gray Cementitious Material	100% Non-Fibrous Material	ND		
CG0524-A30.Layer 1 17956148-1	Good	Gray Cementitious Material	100% Non-Fibrous Material	ND		
CG0524-A30.Layer 2 17956148-1	Good	Black Foam	100% Non-Fibrous Material	ND		
CG0524-A30.Layer 3 17956148-1	Good	Gray Sealant	100% Non-Fibrous Material	ND		
CG0524-A31.Layer 1 17956149-2	Good	White Ceiling Tile	70% Glass Fibers 30% Non-Fibrous Material	ND	X	

Comments: A) 1/400x100=0.25% B) 1/400x100-0.25 %

* Marked layers were selected for reanalysis in additional internal quality control processes, which included the evaluation and comparison of associated data.

The total percentage of sample components shown may be greater than 100% when some components are detected at <1%.

The test report shall not be reproduced except in full, without written approval of the laboratory. The report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the federal government. The Company reserves the right to dispose of all samples after a period of thirty (30) days, according to all state and federal guidelines, unless otherwise specified. Inhomogeneous samples are separated into homogeneous subsamples and analyzed individually. ND means no fibers of that type were detected. When detected, the minimum detection and reporting limit is less than 1% unless point counting is performed. Floor tile samples may contain large amounts of interference material and it is recommended that the sample be analyzed by gravimetric point count analysis to lower the detection limit and to aid in asbestos identification.

‡ A "Version" indicated by -"x" after the Lab ID# with a value greater than 1 indicates a sample with amended data. The revision number is reflected by the value of "x".

Eurofins EPK Built Environment Testing, LLC
9000 Commerce Parkway, Suite B, Mount Laurel, NJ 08054
(856) 231-9449 www.eurofinsus.com/Built

Client: HTRW, LLC
C/O: Chris Ottosen, Viv Ottosen
Re: 2023-13 - Anchorage School District RFP 2023-619

Date of Receipt: 05-31-2024
Date of Report: 06-10-2024

ASBESTOS PLM REPORT

Sample # . Layer # Lab-ID version‡	Homogeneity	Layer Description	Non-Asbestos Content	Asbestos Content	QC*	Comment
CG0524-A32.Layer 1 17956150-1	Good	White Ceiling Tile	50% Cellulose 30% Mineral Wool 20% Non-Fibrous Material	ND		
CG0524-A33.Layer 1 17956151-1	Good	White Joint Compound	100% Non-Fibrous Material	ND		
CG0524-A34.Layer 1 17956152-1	Good	White Pipe Insulation	100% Non-Fibrous Material	ND		
CG0524-A35.Layer 1 17956153-1	Good	Gray Putty	90% Non-Fibrous Material 10% Cellulose	ND		
CG0524-A36.Layer 1 17956154-1	Good	Brown Mastic	100% Non-Fibrous Material	ND	X	
CG0524-A37.Layer 1 17956155-1	Good	Green Sealant	100% Non-Fibrous Material	ND	X	
CG0524-A38.Layer 1 17956156-1	Good	Gray Sealant	100% Non-Fibrous Material	ND	X	
CG0524-A39.Layer 1 17956157-1	Good	White Sealant	100% Non-Fibrous Material	ND		
CG0524-A40.Layer 1 17956158-1	Good	Brown Mastic	100% Non-Fibrous Material	ND		
CG0524-A41.Layer 1 17956159-2	Good	Gray Wallboard	85% Non-Fibrous Material 10% Cellulose 5% Talc	ND		
CG0524-A42.Layer 1 17956160-1	Good	White Ceiling Tile	50% Cellulose 30% Mineral Wool 20% Non-Fibrous Material	ND		
CG0524-A43.Layer 1 17956161-1	Good	White Ceiling Tile	50% Cellulose 30% Mineral Wool 20% Non-Fibrous Material	ND		
CG0524-A44.Layer 1 17956162-1	Good	White Ceiling Tile	50% Cellulose 30% Mineral Wool 20% Non-Fibrous Material	ND		
CG0524-A45.Layer 1 17956163-1	Good	White Ceiling Tile	50% Cellulose 30% Mineral Wool 20% Non-Fibrous Material	ND		
CG0524-A46.Layer 1 17956164-1	Good	White Ceiling Tile	50% Cellulose 30% Mineral Wool 20% Non-Fibrous Material	ND		
CG0524-A47.Layer 1 17956165-1	Good	White Ceiling Tile	50% Cellulose 30% Mineral Wool 20% Non-Fibrous Material	ND		
CG0524-A48.Layer 1 17956166-1	Good	White Joint Compound	100% Non-Fibrous Material	ND		
CG0524-A49.Layer 1 17956167-1	Moderate	White Drywall	98% Non-Fibrous Material 2% Cellulose	ND		

Comments:

* Marked layers were selected for reanalysis in additional internal quality control processes, which included the evaluation and comparison of associated data.

The total percentage of sample components shown may be greater than 100% when some components are detected at <1%.

The test report shall not be reproduced except in full, without written approval of the laboratory. The report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the federal government. The Company reserves the right to dispose of all samples after a period of thirty (30) days, according to all state and federal guidelines, unless otherwise specified. Inhomogeneous samples are separated into homogeneous subsamples and analyzed individually. ND means no fibers of that type were detected. When detected, the minimum detection and reporting limit is less than 1% unless point counting is performed. Floor tile samples may contain large amounts of interference material and it is recommended that the sample be analyzed by gravimetric point count analysis to lower the detection limit and to aid in asbestos identification.

‡ A "Version" indicated by -"x" after the Lab ID# with a value greater than 1 indicates a sample with amended data. The revision number is reflected by the value of "x".

Eurofins EPK Built Environment Testing, LLC
9000 Commerce Parkway, Suite B, Mount Laurel, NJ 08054
(856) 231-9449 www.eurofinsus.com/Built

Client: HTRW, LLC
C/O: Chris Ottosen, Viv Ottosen
Re: 2023-13 - Anchorage School District RFP 2023-619

Date of Receipt: 05-31-2024
Date of Report: 06-10-2024

ASBESTOS PLM REPORT

Sample # . Layer # Lab-ID version‡	Homogeneity	Layer Description	Non-Asbestos Content	Asbestos Content	QC*	Comment
CG0524-A50.Layer 1 17956168-1	Good	White Ceiling Tile	50% Cellulose 30% Mineral Wool 20% Non-Fibrous Material	ND		
CG0524-A51.Layer 1 17956169-1	Good	White Joint Compound	100% Non-Fibrous Material	ND		
CG0524-A52.Layer 1 17956170-1	Good	White Joint Compound	100% Non-Fibrous Material	ND		
CG0524-A53.Layer 1 17956171-1	Good	White Joint Compound	100% Non-Fibrous Material	ND		
CG0524-A54.Layer 1 17956172-1	Good	White Drywall	100% Non-Fibrous Material	ND		
CG0524-A55.Layer 1 17956173-1	Moderate	White Ceiling Tile	50% Cellulose 30% Mineral Wool 20% Non-Fibrous Material	ND		
CG0524-A56.Layer 1 17956174-1	Good	White Joint Compound	100% Non-Fibrous Material	ND		
CG0524-A57.Layer 1 17956175-1	Good	White Drywall	98% Non-Fibrous Material 2% Glass Fibers	ND		
CG0524-A58.Layer 1 17956176-1	Good	White Ceiling Tile	50% Cellulose 30% Mineral Wool 20% Non-Fibrous Material	ND		
CG0524-A59.Layer 1 17956177-1	Good	Gray Sealant	100% Non-Fibrous Material	ND		
CG0524-A60.Layer 1 17956178-1	Good	White Joint Compound	100% Non-Fibrous Material	ND		
CG0524-A61.Layer 1 17956179-1	Good	White Joint Compound	100% Non-Fibrous Material	ND		
CG0524-A62.Layer 1 17956180-1	Good	White Ceiling Tile	50% Cellulose 30% Mineral Wool 20% Non-Fibrous Material	ND		
CG0524-A63.Layer 1 17956181-1	Good	Brown Mastic	100% Non-Fibrous Material	ND		
CG0524-A63.Layer 2 17956181-1	Good	Brown Fiberboard	100% Cellulose	ND		
CG0524-A64.Layer 1 17956182-1	Good	Tan Sealant	100% Non-Fibrous Material	ND		
CG0524-A65.Layer 1 17956183-1	Good	Yellow Sealant	100% Non-Fibrous Material	ND		
CG0524-A65.Layer 2 17956183-1	Good	Yellow Insulation	100% Mineral Wool	ND		
CG0524-A66.Layer 1 17956184-1	Good	Gray Sealant	100% Non-Fibrous Material	ND		

Comments:

Analyst(s): Ellen Smith
Aidan Becker
Michael Moore

* Marked layers were selected for reanalysis in additional internal quality control processes, which included the evaluation and comparison of associated data.

The total percentage of sample components shown may be greater than 100% when some components are detected at <1%.

The test report shall not be reproduced except in full, without written approval of the laboratory. The report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the federal government. The Company reserves the right to dispose of all samples after a period of thirty (30) days, according to all state and federal guidelines, unless otherwise specified. Inhomogeneous samples are separated into homogeneous subsamples and analyzed individually. ND means no fibers of that type were detected. When detected, the minimum detection and reporting limit is less than 1% unless point counting is performed. Floor tile samples may contain large amounts of interference material and it is recommended that the sample be analyzed by gravimetric point count analysis to lower the detection limit and to aid in asbestos identification.

‡ A "Version" indicated by -"x" after the Lab ID# with a value greater than 1 indicates a sample with amended data. The revision number is reflected by the value of "x".

Eurofins EPK Built Environment Testing, LLC
9000 Commerce Parkway, Suite B, Mount Laurel, NJ 08054
(856) 231-9449 www.eurofinsus.com/Built

Client: HTRW, LLC
C/O: Chris Ottosen, Viv Ottosen
Re: 2023-13 - Anchorage School District RFP 2023-619

Date of Receipt: 05-31-2024
Date of Report: 06-10-2024

SUMMARY OF REVISIONS

Location: CG0524-A31; Photo:405- Lay-In Ceiling Tile Lab ID-Version‡: 17956149-2
Revision Report Date: 06-10-2024
Analysis Time revised. Layer Description and Homogeneity revised. Non-asbestos content revised.

Location: CG0524-A41; Photo:566 Beige Manufactured Hardboard Lab ID-Version‡: 17956159-2
Revision Report Date: 06-10-2024
Analysis Time revised. Layer Description and Homogeneity revised. Non-asbestos content revised.

‡ A "Version" indicated by -"x" after the Lab ID# with a value greater than 1 indicates a sample with amended data. The revision number is reflected by the value of "x".

HTRW, LLC

CHAIN OF CUSTODY

003664938

11471 Business Blvd., #773442
Eagle River, Alaska 99577
(907)-917-3801

Project Number	*2023-13*					**Selected Laboratory**	*iATL*
Project Name	*Anchorage School District RFP 2023-619 Design Services: College Gate Elementary School Roof Replacement*					**Shipping Method**	*FedEx, 7766 2081 9594*
Address/Location	*3101 Sunflower Street, Anchorage, Alaska 99508*					**Date and Time**	*05/30/2024, 10:00 AM*
Client	*RIM Architects, LLC*					**Samples Received By**	
Inspector/Collected By	*Christopher T. Ottosen*					**Date and Time**	
EPA B.I.# and State	*TBI4-124-18714/Alaska*					**Analyst Signature(s)**	MAY 3 2024
Collection Date	*05/28-29/2024*	**Quantity**	*66*	**Turnaround**	*5-Day*		
Requested Analysis	*Asbestos Bulk by PLM, EPA Method 600, R93-116*						
Special Notes	*E-mail results to cottosen@htrw-llc.com. Provide a scanned color copy of this chain of custody or return the original hard copies. Do not analyze wood, paint, or foam or perform composite analysis of gypsum wall board and joint compound unless specifically asked for in the sample description.*						

SAMPLE NUMBER	SAMPLE DESCRIPTION	SAMPLE LOCATION	PHOTO REFERENCE	LAB SAMPLE ID
CG0524-A01	Vinyl-covered gypsum wall board: L1: Beige vinyl-like covering L2: Off-white gypsum board	Above door on the northwest side of Book Room 44	146	
CG0524-A02	L1: (LCT1) Lay-in ceiling tile, 2' x 4' with false 2' x 2' appearance, beveled edges, and 1/16"-1/8" wide x 1/8"-1/2" oblong fissures and 1/16" holes, most common lay-in ceiling tile observed in building	Southeast side of Corridor 420 near entrance to Book Room 44	148	
CG0524-A03	L1: Dark grey putty used on the seams of the corrugated metal roof deck	Loose on top of lay-in ceiling tiles at the southeast side of Corridor 420 near entrance to Book Room 44	152	
CG0524-A04	L1: White joint compound	Southeast side of Corridor 420 above the door to Book Room 44	149	
CG0524-A05	L1: Brown wood fiber-like sound insulating board L2: Dark brown mastic used on the surface of the sound insulating board	Southeast side of Corridor 420 above the door to Book Room 44	149	
CG0524-A06	L1: Hard semi-pliable sealant used to adhere LCT1 from sample CG0524-02 to the metal ceiling grid **DO NOT ANALYZE LAY-IN CEILING TILE IN THIS SAMPLE**	Southeast side of Corridor 420 near entrance to Book Room 44	155	

Page 1 of 7

Analyzed - BC 6/13/24

2023-13-PLM-COC-24-05-28

HTRW, LLC

CHAIN OF CUSTODY

003664938

11471 Business Blvd., #773442
Eagle River, Alaska 99577
(907)-917-3801

SAMPLE NUMBER	SAMPLE DESCRIPTION	SAMPLE LOCATION	PHOTO REFERENCE	LAB SAMPLE ID
CG0524-A07	L1: Semi-pliable light grey sealant used on the seams of the metal flashing on the top of the exterior precast concrete walls	South exterior of Vestibule 430	166	
CG0524-A08	L1: Spongy light grey sealant used on the corner seams between the exterior precast concrete walls where there are changes in direction of the wall panels	South exterior of Vestibule 430	168	
CG0524-A09	L1: Semi-pliable light grey sealant used between precast concrete wall panel seams on "runs" (i.e. not at the edges/where there are changes in direction)	South exterior of Classroom 43	169	
CG0524-A10	L1: Dark grey-green "puck" mastic that appears to have been used to adhere the former gypsum board soffit to the remaining sound insulating board L2: Brown wood fiber-like sound insulating board	Southeast side of Corridor 410 on exposed sound insulating board above the lay-in ceiling	187	
CG0524-A11	L1: (DSS1) Hard slightly pliable grey-green sealant used on the seams of ductwork/HVAC systems in the building installed during the 1995 Additions and Renovations project	Southeast side of Corridor 410 on large supply air duct above the lay-in ceiling	186	7761355
CG0524-A12	L1: (LCT1) Lay-in ceiling tile, 2' x 4' with false 2' x 2' appearance, beveled edges, and 1/16"-1/8" wide x 1/8"-1/2" oblong fissures and 1/16" holes, most common lay-in ceiling tile observed in building	West side of Classroom 42	208	
CG0524-A13	L1: (LCT2) Lay-in ceiling tile, 2' x 4' with false 2' x 2' appearance, beveled edges, and textured surface, common lay-in tile observed in the administrative areas	West side of Workroom 53	255	
CG0524-A14	L1: White joint compound	South wall of Workroom 53 above the lay-in ceiling	256	
CG0524-A15	L1: White gypsum board	South wall of Workroom 53 above the lay-in ceiling	256	
CG0524-A16	L1: (DSS2) Hard semi-pliable dark grey sealant used on the seams of some ductwork/HVAC systems in the building installed during the 2005 Mechanical Upgrades project	West side of Workroom 53 on ductwork above lay-in ceiling	257	7761356
CG0524-A17	L1: (DSS1) Hard slightly pliable grey-green sealant used on the seams of ductwork/HVAC systems in the building installed during the 1995 Additions and Renovations project	West side of Workroom 53 smeared onto joist below the ductwork above the lay-in ceiling	258	

Page 2 of 7

2023-13-PLM-COC-24-05-28

HTRW, LLC

CHAIN OF CUSTODY

003664938

11471 Business Blvd., #773442
Eagle River, Alaska 99577
(907)-917-3801

SAMPLE NUMBER	SAMPLE DESCRIPTION	SAMPLE LOCATION	PHOTO REFERENCE	LAB SAMPLE ID
CG0524-A18	L1: (LCT3) Lay-in ceiling tile, 2' x 4' with 1/8"-3/16" oblong holes and 1/16" holes, lay-in tile observed in Corridors 625, 650, and 750 and some vestibules	Southwest side of Corridor 625 near entrance to Library 61	273	
CG0524-A19	L1: Dark brown mastic used between layers of vinyl-covered gypsum wall board L2: Green mastic used between layers of vinyl-covered gypsum wall board **DO NOT ANALYZE PAPER OF GYPSUM BOARD IN THIS SAMPLE**	Above the lay-in ceiling on the southwest side of Corridor 625 near entrance to Library 61	278	
CG0524-A20	Vinyl-covered gypsum wall board: L1: Beige vinyl-like covering L2: Off-white gypsum board	Above the lay-in ceiling on the southwest side of Corridor 625 near entrance to Library 61	278	
CG0524-A21	L1: (LCT3) Lay-in ceiling tile, 2' x 4' with 1/8"-3/16" oblong holes and 1/16" holes, lay-in tile observed in Corridors 625, 650, and 750 and some vestibules	Southeast side of Corridor 750 above doors	305	
CG0524-A22	L1: (LCT1) Lay-in ceiling tile, 2' x 4' with false 2' x 2' appearance, beveled edges, and 1/16"-1/8" wide x 1/8"-1/2" oblong fissures and 1/16" holes, most common lay-in ceiling tile observed in building	Northeast side of Classroom 65	318	
CG0524-A23	L1: Pliable tan mastic used to adhere lay-in ceiling grid perimeter "L" channels to substrates	Northwest side of Classroom 65 above lay-in ceiling on exterior wall	325	
CG0524-A24	L1: Hard dark brown mastic used to adhere lay-in ceiling grid perimeter "L" channels to substrates	Northwest side of Classroom 65 above lay-in ceiling on exterior wall	325	7761357
CG0524-A25	L1: (LCT4) Lay-in ceiling tile, 2' x 4' with 1/8"-3/16" wide x 1/4"-1/2" fissures and 1/64"-1/16" holes, lay-in tile observed in Vestibule 67A	North side of Vestibule 67A	342	
CG0524-A26	L1: Hard brittle/crispy brown-orange "puck" mastic used to adhere smooth-faced hardwood paneling to underlying rigid green foam insulation **DO NOT ANALYZE GREEN FOAM**	East wall of Boiler Room 74 next to door	387	7761358
CG0524-A27	L1: Hard brittle/crispy dark grey "puck" mastic used to adhere rigid green foam insulation to underlying precast concrete wall panel substrate **DO NOT ANALYZE GREEN FOAM**	East wall of Boiler Room 74 next to door	388	7761359
CG0524-A28	L1: Dark grey putty used on the seams of the corrugated metal roof deck	South side of Boiler Room 74 next to roof hatch	395	
CG0524-A29	L1: Light beige cementitious mortar-like coating on precast concrete wall panel	Northwest side of Boiler Room 74	385	

HTRW, LLC

CHAIN OF CUSTODY

003664938

11471 Business Blvd., #773442
Eagle River, Alaska 99577
(907)-917-3801

SAMPLE NUMBER	SAMPLE DESCRIPTION	SAMPLE LOCATION	PHOTO REFERENCE	LAB SAMPLE ID
	L1: Grey concrete from the precast concrete wall panels L2: Black high-density foam backer rod			
CG0524-A30	L3: Light grey sealant used between precast concrete wall panel seams on "runs" (i.e. not at the edges/where there are changes in direction)	Northwest side of Boiler Room 74	386	
CG0524-A31	L1: (LCT5) Lay-in ceiling tile, 2' x 4' fiberglass lay-in tile with vinyl-like facing, observed in the Kitchen	North side of Kitchen 68A above door	405	
CG0524-A32	L1: (LCT1) Lay-in ceiling tile, 2' x 4' with false 2' x 2' appearance, beveled edges, and 1/16"-1/8" wide x 1/8"-1/2" oblong fissures and 1/16" holes, most common lay-in ceiling tile observed in building	Southeast side of Classroom 37	430	
CG0524-A33	L1: White joint compound	Southeast side of Classroom 37 on south wall above lay-in ceiling	429	
CG0524-A34	L1: Remnant beige material on 90 degree elbow on VTR piping	Southeast side of Classroom 37 on VTR piping above lay-in ceiling	427	
CG0524-A35	L1: Dark grey penetration putty used at conduit penetration thru sheet metal duct	On relief air duct above the lay-in ceiling in Corridor 300 near the entrance to Fan Room 38	443	
CG0524-A36	L1: Brown crispy/brittle "puck" mastic remnant	Exposed above the door on the east wall of Fan Room 38	444	
CG0524-A37	L1: Clear/green silicone-like sealant used on seams of the sheet metal roof of the "Raven House"	Southwest side of roof	497	
CG0524-A38	L1: Dark grey compound used between the stained glass windows and wood retainers on the "Raven House"	South side of the structure	499	7761360
CG0524-A39	L1: Hard but flexible panel with white chalky surface and clear interior	South side of the roof	498	
CG0524-A40	L1: Hard brittle/crispy dark grey-brown "puck" mastic used to adhere rigid green foam insulation to underlying precast concrete wall panel substrate **DO NOT ANALYZE GREEN FOAM**	Northeast side of Corridor 220 above lay-in ceiling	505	
CG0524-A41	L1: Beige manufactured hardboard with off-white interior used on exterior fascia and soffit panels	South exterior of Vestibule 710 at damaged area of fascia panel	566	7761361
CG0524-A42	L1: (LCT6) Lay-in ceiling tile, 2' x 4' with false 2' x 2' appearance, beveled edges, and 1/16" wide x 1/8"-1/4" densely packed fissures and densely packed 1/16" holes, common lay-in tile in Corridor 675 and as a replacement tile scattered throughout the school	Southwest side of Corridor 675 above the double doors	571	

HTRW, LLC

CHAIN OF CUSTODY

003664938

11471 Business Blvd., #773442
Eagle River, Alaska 99577
(907)-917-3801

SAMPLE NUMBER	SAMPLE DESCRIPTION	SAMPLE LOCATION	PHOTO REFERENCE	LAB SAMPLE ID
CG0524-A43	L1: (LCT7) Lay-in ceiling tile, 2' x 4' with false 2' x 2' appearance, beveled edges, and 1/8"-3/16" oblong holes and 1/16"-1/8" holes, common in corridors and vestibules surrounding the administrative area and as a replacement tile scattered throughout the school	Northwest side of Corridor 675	572	
CG0524-A44	L1: (LCT7) Lay-in ceiling tile, 2' x 4' with false 2' x 2' appearance, beveled edges, and 1/8"-3/16" oblong holes and 1/16"-1/8" holes, common in corridors and vestibules surrounding the administrative area and as a replacement tile scattered throughout the school	Near center of Corridor 320	573	
CG0524-A45	L1: (LCT6) Lay-in ceiling tile, 2' x 4' with false 2' x 2' appearance, beveled edges, and 1/16" wide x 1/8"-1/4" densely packed fissures and densely packed 1/16" holes, common lay-in tile in Corridor 675 and as a replacement tile scattered throughout the school	North side of Corridor 220	574	
CG0524-A46	L1: (LCT6) Lay-in ceiling tile, 2' x 4' with false 2' x 2' appearance, beveled edges, and 1/16" wide x 1/8"-1/4" densely packed fissures and densely packed 1/16" holes, common lay-in tile in Corridor 675 and as a replacement tile scattered throughout the school	North side of Corridor 200	575	
CG0524-A47	L1: (LCT7) Lay-in ceiling tile, 2' x 4' with false 2' x 2' appearance, beveled edges, and 1/8"-3/16" oblong holes and 1/16"-1/8" holes, common in corridors and vestibules surrounding the administrative area and as a replacement tile scattered throughout the school	West side of Vestibule 610	576	
CG0524-A48	L1: White joint compound	Northeast side of Central Storage 66 from above ceiling at fire sprinkler penetration	594	
CG0524-A49	L1: White gypsum board	Northeast side of Central Storage 66 from above ceiling at fire sprinkler penetration	594	
CG0524-A50	L1: (LCT1) Lay-in ceiling tile, 2' x 4' with false 2' x 2' appearance, beveled edges, and 1/16"-1/8" wide x 1/8"-1/2" oblong fissures and 1/16" holes, most common lay-in ceiling tile observed in building	Near center of Corridor 720	595	
CG0524-A51	L1: White joint compound	Southeast corner of Electrical Room 73	627	
CG0524-A52	L1: White gypsum board	At hole in east wall above door in Mechanical 72	629	
CG0524-A53	L1: White joint compound	East wall of Classroom 16 above the lay-in ceiling	641	

2023-13-PLM-COC-24-05-28

HTRW, LLC

CHAIN OF CUSTODY

003664938

11471 Business Blvd., #773442
Eagle River, Alaska 99577
(907)-917-3801

SAMPLE NUMBER	SAMPLE DESCRIPTION	SAMPLE LOCATION	PHOTO REFERENCE	LAB SAMPLE ID
CG0524-A54	L1: White gypsum board	East wall of Classroom 16 above the lay-in ceiling	641	
CG0524-A55	L1: (LCT1) Lay-in ceiling tile, 2' x 4' with false 2' x 2' appearance, beveled edges, and 1/16"-1/8" wide x 1/8"-1/2" oblong fissures and 1/16" holes, most common lay-in ceiling tile observed in building	East side of Classroom 16 near the double doors	642	
CG0524-A56	L1: White joint compound	West side of Classroom 15 at water damaged area of gypsum board above the lay-in ceiling	645	
CG0524-A57	L1: White gypsum board	West side of Classroom 15 at water damaged area of gypsum board above the lay-in ceiling	645	
CG0524-A58	L1: (LCT2) Lay-in ceiling tile, 2' x 4' with false 2' x 2' appearance, beveled edges, and textured surface, common lay-in tile observed in the administrative areas (this tile was the only "outlier" observed)	West side of Classroom 15	649	
CG0524-A59	L1: (DSS1) Hard slightly pliable grey-green sealant used on the seams of ductwork/HVAC systems in the building installed during the 1995 Additions and Renovations project	East side of Classroom 15 on the bottom of the relief air duct	655	
CG0524-A60	L1: White joint compound	South wall of C102 at rain leader pipe penetration thru gypsum board wall	666	
CG0524-A61	L1: White gypsum board	South wall of C102 at rain leader pipe penetration thru gypsum board wall	666	
CG0524-A62	L1: (LCT1) Lay-in ceiling tile, 2' x 4' with false 2' x 2' appearance, beveled edges, and 1/16"-1/8" wide x 1/8"-1/2" oblong fissures and 1/16" holes, most common lay-in ceiling tile observed in building	South side of C102 at water damaged lay-in tile	664	
CG0524-A63	L1: Dark grey-green "puck" mastic that appears to have been used to adhere the former gypsum board soffit to the remaining sound insulating board L2: Brown wood fiber-like sound insulating board	North side of Corridor 310 on exposed sound insulating board above the lay-in ceiling	470	7761362
CG0524-A64	L1: (DSS3) Hard tan sealant used between the duct flanges and heating coils in the original construction	Near center of Corridor 410 above lay-in ceiling	677	
CG0524-A65	L1: Yellow semi-pliable mastic used to adhere fiberglass insulation to the outside of ductwork from the original construction	Northwest side of Fan Room 63A at air intake duct near roof deck	688	

Page 6 of 7

2023-13-PLM-COC-24-05-28

HTRW, LLC

CHAIN OF CUSTODY

0D5664938

11471 Business Blvd., #773442
Eagle River, Alaska 99577
(907)-917-3801

SAMPLE NUMBER	SAMPLE DESCRIPTION	SAMPLE LOCATION	PHOTO REFERENCE	LAB SAMPLE ID
CG0524-A66	L1: (DSS2) Hard semi-pliable dark grey sealant used on the seams of some ductwork/HVAC systems in the building installed during the 2005 Mechanical Upgrades project	Southwest side of Fan Room 63A at return air duct connection to older ductwork	689	
--END--				

2023-13-PLM-COC-24-05-28

eurofins | Built Environment Testing
iATL

9000 Commerce Parkway Suite B
Mt. Laurel, New Jersey 08054
Telephone: 856-231-9449
Email: customerservice@iatl.com

CERTIFICATE OF ANALYSIS

Client: HTRW, LLC
11471 Business Blvd., #773442
Anchorage AK 99577

Client: HTR114

Report Date: 6/13/2024
Report No.: 700875 - TEM NOB
Project: Anchorage School District RFP 2023-619
Project No.: 2023-13 EMLab ID: 3664938

TEM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 7761355 **Facility:** **Organic Fraction:** 77.4 %
Client No.: CG0524-A11 **Location:** **Gravimetrically Reduced Subsample:** 22.6%
Description: Green Sealant

% Asbestos Detected:	% Non-Asbestos Fibrous Material:	% Non-Fibrous Material:
None Detected	None Detected	22.6 Other

Lab No.: 7761356 **Facility:** **Organic Fraction:** 78.3 %
Client No.: CG0524-A16 **Location:** **Gravimetrically Reduced Subsample:** 21.7%
Description: Grey Sealant

% Asbestos Detected:	% Non-Asbestos Fibrous Material:	% Non-Fibrous Material:
None Detected	None Detected	21.7 Other

Lab No.: 7761357 **Facility:** **Organic Fraction:** 66.6 %
Client No.: CG0524-A24 **Location:** **Gravimetrically Reduced Subsample:** 33.4%
Description: Brown Mastic

% Asbestos Detected:	% Non-Asbestos Fibrous Material:	% Non-Fibrous Material:
5.0 *Chrysotile*	None Detected	28.4 Other

Lab No.: 7761358 **Facility:** **Organic Fraction:** 84.3 %
Client No.: CG0524-A26 **Location:** **Gravimetrically Reduced Subsample:** 15.7%
Description: Orange Mastic

% Asbestos Detected:	% Non-Asbestos Fibrous Material:	% Non-Fibrous Material:
0.2 *Chrysotile*	None Detected	15.5 Other

Insufficient material provided to verify results <100mg.

Lab No.: 7761359 **Facility:** **Organic Fraction:** 51.5 %
Client No.: CG0524-A27 **Location:** **Gravimetrically Reduced Subsample:** 48.5%
Description: Grey Mastic

% Asbestos Detected:	% Non-Asbestos Fibrous Material:	% Non-Fibrous Material:
Trace *Chrysotile, Detected at <0.25%*	None Detected	48.5 Other

Insufficient material provided to verify results <100mg.

Please refer to the Preface of this report for further information regarding your analysis.

Date Received: 6/10/2024
Date Analyzed: 06/13/2024
Signature:
Analyst: Patrick Carr

Approved By:
Frank E. Ehrenfeld, III
Laboratory Director

Dated : 6/14/2024 11:27:46

eurofins | Built Environment Testing
iATL

9000 Commerce Parkway Suite B
Mt. Laurel, New Jersey 08054
Telephone: 856-231-9449
Email: customerservice@iatl.com

CERTIFICATE OF ANALYSIS

Client: HTRW, LLC
11471 Business Blvd., #773442
Anchorage AK 99577

Client: HTR114

Report Date: 6/13/2024
Report No.: 700875 - TEM NOB
Project: Anchorage School District RFP 2023-619
Project No.: 2023-13 EMLab ID: 3664938

TEM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 7761360 **Facility:** **Organic Fraction:** 96.8 %
Client No.: CG0524-A38 **Location:** **Gravimetrically Reduced Subsample:** 3.2%
Description: Grey Sealant

% Asbestos Detected:	% Non-Asbestos Fibrous Material:	% Non-Fibrous Material:
None Detected	None Detected	3.2 Other

Insufficient material provided to verify results <100mg.

Lab No.: 7761361 **Facility:** **Organic Fraction:** 38.2 %
Client No.: CG0524-A41 **Location:** **Gravimetrically Reduced Subsample:** 61.8%
Description: Grey Wallboard

% Asbestos Detected:	% Non-Asbestos Fibrous Material:	% Non-Fibrous Material:
None Detected	None Detected	61.8 Other

Lab No.: 7761362 **Facility:** **Organic Fraction:** 55.6 %
Client No.: CG0524-A63 **Location:** **Gravimetrically Reduced Subsample:** 44.4%
Description: Brown Mastic

% Asbestos Detected:	% Non-Asbestos Fibrous Material:	% Non-Fibrous Material:
None Detected	None Detected	44.4 Other

Insufficient material provided to verify results <100mg.

Please refer to the Preface of this report for further information regarding your analysis.

Date Received: 6/10/2024
Date Analyzed: 06/13/2024
Signature:
Analyst: Patrick Carr

Approved By:
Frank E. Ehrenfeld, III
Laboratory Director

Dated : 6/14/2024 11:27:46

eurofins | Built Environment Testing
iATL

9000 Commerce Parkway Suite B
Mt. Laurel, New Jersey 08054
Telephone: 856-231-9449
Email: customerservice@iatl.com

CERTIFICATE OF ANALYSIS

Client:	HTRW, LLC	Report Date:	6/13/2024
	11471 Business Blvd., #773442	Report No.:	700875 - TEM NOB
	Anchorage AK 99577	Project:	Anchorage School District RFP 2023-619
Client:	HTR114	Project No.:	2023-13 EMLab ID: 3664938

Appendix to Analytical Report:

Customer Contact: Chris Ottosen
Analysis: ELAP Section 198.4

This appendix seeks to promote greater understanding of any observations, exceptions, special instructions, or circumstances that the laboratory needs to communicate to the client concerning the above samples. The information below is used to help promote your ability to make the most informed decisions for you and your customers. Please note the following points of contact for any questions you may have.

iATL Customer Service: customerservice@iatl.com
iATL Office Manager:wchampion@iatl.com
iATL Account Representative: House Account
Sample Login Notes: See Batch Sheet Attached
Sample Matrix: Bulk material, Non-Friable Organically Bound material such as VSF, FT, M, RM, Tar, CB, Shingle, Tar Paper, Caulk, Glazing
Exceptions Noted: See Following Pages

General Terms, Warrants, Limits, Qualifiers:

General information about iATL capabilities and client/laboratory relationships and responsibilities are spelled out in iATL policies that are listed at www.iATL.com and ir our Quality Assurance Manual per ISO 17025 standard requirements. The information therein is a representation of iATL definitions and policies for turnaround times, sample submittal, collection media, blank definitions, quantification issues and limit of detection, analytical methods and procedures, sub-contracting policies, results reporting options, fees, terms, and discounts, confidentiality, sample archival and disposal, and data interpretation.

iATL warrants the test results to be of a precision normal for the type and methodology employed for each sample submitted. iATL disclaims any other warrants, expressed or implied, including warranty of fitness for a particular purpose and warranty of merchantability. iATL accepts no legal responsibility for the purpose for which the client uses test results. Any analytical work performed must be governed by our Standard Terms and Conditions. Prices, methods and detection limits may be changed without notification. Please contact your Customer Service Representative for the most current information.

This confidential report relates only to those item(s) tested and does not represent an endorsement by NIST-NVLAP, AIHA LAP LLC, or any agency of local, state or province governments nor of any agency of the U.S. government.

This report shall not be reproduced except in full, without written approval of the laboratory.

Information Pertinent to this Report:

Analysis by ELAP Section 198.4

Certifications:

- NIST-NVLAP No. 101165-0
- NYSDOH-ELAP No. 11021
- AIHA-LAP, LLC No. 100188

All results are based on the samples as received at the lab. iATL assumes that appropriate sampling methods have been used and that the data upon which these results are based have been accurately supplied by the client.

The "Gravimetrically Reduced Subsample" is the portion of the submitted sample remaining following the ashing and acid treatment processes. TEM analysis occurs on this portion of the sample.

Final results are calculated to represent the sample as submitted. Results are verifiable for only those operations and analyses performed in the laboratory.

eurofins | Built Environment Testing
iATL

9000 Commerce Parkway Suite B
Mt. Laurel, New Jersey 08054
Telephone: 856-231-9449
Email: customerservice@iatl.com

CERTIFICATE OF ANALYSIS

Client:	HTRW, LLC	Report Date:	6/13/2024
	11471 Business Blvd., #773442	Report No.:	700875 - TEM NOB
	Anchorage AK 99577	Project:	Anchorage School District RFP 2023-619
		Project No.:	2023-13 EMLab ID: 3664938
Client:	HTR114		

Disclaimers / Qualifiers:

There may be some samples in this project that have a "NOTE:" associated with a sample result. We use added disclaimers or qualifiers to inform the client about something that requires further explanation. Here is a complete list with highlighted disclaimers pertinent to this project. For a full explanation of these and other disclaimers, please inquire at **customerservice@iatl.com.**

(1)Note: Sample not analyzed.
(2)Note: Sample not analyzed at request of client.
(3)Note: Sample analysis terminated. Clearance criteria exceeded (average >70.0 s/mm²). Set fails by AHERA 40 CFR 763.
(4)Note: Heavy loading (>0.1 s/cc) of non-asbestos particulate that might prohibit the required morphological, diffraction and elemental identification of asbestos. The absence of asbestos on the sample can not be concluded. Analysis for informational purposes only.
(5)Note: Heavy loading (>10% per grid opening) non-fibrous particulate. Sample analysis terminated. Clearance criteria exceeded (>10%). Sample voided by AHERA 40 CFR 763.
(5A)Note: Heavy loading (>25% per grid opening) non-fibrous particulate. Sample analysis terminated. Clearance criteria exceeded (>25%). Sample voided by NIOSH 7402.
(6)Note: Sample turbidity >1.0 NTU. Therefore MDL >> 0.1 MFL. Does not meet National Primary Drinking Water Standards.
(7)Note: Sample integrity compromised. Received sample cassette with top open (40 CFR 763 c-e).
(8)Note: Received sample cassettes with portion of filter missing. "PCM re-prep"
(9)Note: Void - overloaded, unable to prep.
(10)Note: Void - filter damaged.
(11)Note: No volume supplied.
(12)Note: Heavy loading (>0.1 s/cc) of non-asbestos / non-fibrous particulate.
(13)Note: Method analytical sensitivity of <0.003 s/cc not attained due to volume of air sampled. NIOSH requires a minimum of 400L.
(13A)Note: Volume does not meet AHERA requirements.(<1188 L)
(14)Note: Geometric Mean = 0.xxxx Structures/cc
(15)Note: Samples received on 0.8 micron PCM filters. Samples must be submitted on 0.45 micron filter cassettes per AHERA guidelines
(18)Note: *Results are for informational purposes only. Samples received on 0.8um PCM cassettes. Per AHERA 40 CFR 763 guidelines samples must be obtained on a 0.45um cassette.
(TEM NOB 1) Note: The above result represents only the analysis of NOB-residue submitted from the client.
(TEM NOB 2) Note: Insufficient material (<100mg) to verify results.

HTRW, LLC

CHAIN OF CUSTODY

003723588

11471 Business Blvd., #773442
Eagle River, Alaska 99577
(907)-917-3801

Project Number	*2023-13*				**Selected Laboratory**	*iATL*	
Project Name	*Anchorage School District RFP 2023-619 Design Services; College Gate Elementary School Roof Replacement*				**Shipping Method**	*FedEx, 7775 9658 2600*	
Address/Location	*3101 Sunflower Street, Anchorage, Alaska 99508*				**Date and Time**	*07/25/2024, 10:00 AM*	
Client	*RIM Architects, LLC*				**Samples Received By**	RECEIVED	
Inspector/Collected By	*Christopher T. Ottosen*				**Date and Time**		
EPA B.I.# and State	*TBI4-124-18714/Alaska*				**Analyst Signature(s)**	JUL 25 2024	
Collection Date	*07/24/2024*	**Quantity**	*06*	**Turnaround** *3-Day*			
Requested Analysis	*Asbestos Bulk by PLM, EPA Method 600, R93-116*						
Special Notes	*E-mail results to cottosen@htrw-llc.com. Provide a scanned color copy of this chain of custody or return the original hard copies. Do not analyze wood, paint, or foam or perform composite analysis of gypsum wall board and joint compound unless specifically asked for in the sample description.*						

SAMPLE NUMBER	SAMPLE DESCRIPTION	SAMPLE LOCATION	PHOTO REFERENCE	LAB SAMPLE ID
CG0724-A01	L1: Grey exterior cement board fascia	West exterior of Classroom 46	696	
CG0724-A02	L1: Grey exterior cement board fascia	South exterior of Library 61	710	
CG0724-A03	L1: Off-white to cream-colored mastic used between the gypsum board studs and the wood fiber sound deadening board	East side of Corridor 550 at cutout in vinyl gypsum board partition	722	
CG0724-A04	L1: Mastic between layers of gypsum board studs (color could not be determined in field)	East side of Corridor 550 at cutout in vinyl gypsum board partition	732	
CG0724-A05	L1: Ceiling tile material with hard dark grey matrix	Loose on top of gypsum board ceiling in Toilet 538	736	
CG0724-A06	L1: Dark grey semi-pliable mastic used on the seams of older bathroom exhaust fans	Of exhaust duct above the gypsum board ceiling in Toilet 538	743	
--END--				

Page 1 of 1

2023-13-PLM-COC-24-07-24



After printing this label:
1. Use the 'Print' button on this page to print your label to your laser or inkjet printer.
2. Fold the printed page along the horizontal line.
3. Place label in shipping pouch and affix it to your shipment so that the barcode portion of the label can be read and scanned.

Warning: Use only the printed original label for shipping. Using a photocopy of this label for shipping purposes is fraudulent and could result in additional billing charges, along with the cancellation of your FedEx account number.
Use of this system constitutes your agreement to the service conditions in the current FedEx Service Guide, available on fedex.com.FedEx will not be responsible for any claim in excess of $100 per package, whether the result of loss, damage, delay, non-delivery,misdelivery,or misinformation, unless you declare a higher value, pay an additional charge, document your actual loss and file a timely claim.Limitations found in the current FedEx Service Guide apply. Your right to recover from FedEx for any loss, including intrinsic value of the package, loss of sales, income interest, profit, attorney's fees, costs, and other forms of damage whether direct, incidental,consequential, or special is limited to the greater of $100 or the authorized declared value. Recovery cannot exceed actual documented loss.Maximum for items of extraordinary value is $1,000, e.g. jewelry, precious metals, negotiable instruments and other items listed in our ServiceGuide. Written claims must be filed within strict time limits, see current FedEx Service Guide.

eurofins | Built Environment Testing
iATL

Report for:

Chris Ottosen, Viv Ottosen
HTRW, LLC
11471 Business Blvd
#773442
Eagle River, AK 99577

Regarding: Eurofins EPK Built Environment Testing, LLC
Project: 2023-13 - College Gate ES Roof Replacement
EML ID: 3723588

Approved by:



Approved Signatory
Frank Ehrenfeld

Dates of Analysis:
Asbestos PLM (Layer %): 07-31-2024

Service SOPs: Asbestos PLM (Layer %) (EPA 40CFR App E to Sub E of Part 763 & EPA METHOD 600/R-93-116, SOP EM-AS-S-1267)

All samples were received in acceptable condition unless noted in the Report Comments portion in the body of the report. The results relate only to the samples as received and tested. The results include an inherent uncertainty of measurement associated with estimating percentages by polarized light microscopy. Measurement uncertainty data for sample results with >1% asbestos concentration can be provided when requested.

Eurofins EPK Built Environment Testing, LLC ("the Company"), a member of the Eurofins Built Environment Testing group of companies, shall have no liability to the client or the client's customer with respect to decisions or recommendations made, actions taken or courses of conduct implemented by either the client or the client's customer as a result of or based upon the Test Results. In no event shall the Company be liable to the client with respect to the Test Results except for the Company's own willful misconduct or gross negligence nor shall the Company be liable for incidental or consequential damages or lost profits or revenues to the fullest extent such liability may be disclaimed by law, even if the Company has been advised of the possibility of such damages, lost profits or lost revenues. In no event shall the Company's liability with respect to the Test Results exceed the amount paid to the Company by the client therefor.

Eurofins EPK Built Environment Testing, LLC
9000 Commerce Parkway, Suite B, Mount Laurel, NJ 08054
(856) 231-9449 www.eurofinsus.com/Built

Client: HTRW, LLC
C/O: Chris Ottosen, Viv Ottosen
Re: 2023-13 - College Gate ES Roof Replacement

Date of Receipt: 07-26-2024
Date of Report: 07-31-2024

Bulk Asbestos Fiber Analysis by Polarized Light Microscopy (PLM)
Appx E Sub E 40 CFR 763 / EPA 600/R-93/116

Sample ID # Lab-ID version	Sample Description	Asbestos Constituents	Non-Asbestos Constituents	Comment
CG0724-A01. Grey Exterior Cement Board Fascia; West Exterior of Classroom 46 18307735-1	Layer 1 Gray Transite Homogeneity:Good	20% Chrysotile	80% Non-Fibrous Material	
CG0724-A02. Grey Exterior Cement Board Fascia; South Exterior of Library 61 18307736-1	Layer 1 Gray Transite Homogeneity:Good	20% Chrysotile	80% Non-Fibrous Material	
CG0724-A03. Off-White to Cream-Colored Mastic Used Between the Gypsum Board Studs and the Wood Fiber Sound Deadening Board; East Side of Corridor 550 at Cutout in Vinyl Gypsum Board Partition 18307737-1	Layer 1 Off-White Mastic Homogeneity:Good	4% Chrysotile	96% Non-Fibrous Material	A
CG0724-A04. Mastic Between Layers of Gypsum Board Studs; East Side of Corridor 550 at Cutout in Vinyl Gypsum Board Partition 18307738-1	Layer 1 White Drywall with Brown Paper Homogeneity:Good	Not Detected	90% Non-Fibrous Material 10% Cellulose	B
CG0724-A05. Ceiling Tile Material with Hard Dark Grey Matrix; Loose on Top of Gypsum Board Ceiling in Toilet 53B 18307739-1	Layer 1 White Ceiling Tile Homogeneity:Good	Not Detected	60% Glass Fibers 40% Non-Fibrous Material	
CG0724-A06. Dark Grey Semi-Pliable Mastic Used on the Seams of Older Bathroom Exhaust Fans; Of Exhaust Duct Above the Gypsum Board Ceiling in Toilet 53B 18307740-1	Layer 1 Gray Mastic Homogeneity:Good	Not Detected	100% Non-Fibrous Material	

Comments: A)PC: 3.7% (4/109) B)No mastic evident with sample.

Analyst(s): Aidan Becker

The total percentage of sample components shown may be greater than 100% when some components are detected at <1%.

The test report shall not be reproduced except in full, without written approval of the laboratory. The report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the federal government. The Company reserves the right to dispose of all samples after a period of thirty (30) days, according to all state and federal guidelines, unless otherwise specified. Inhomogeneous samples are separated into homogeneous subsamples and analyzed individually. ND means no fibers of that type were detected. When detected, the minimum detection and reporting limit is less than 1% unless point counting is performed. Floor tile samples may contain large amounts of interference material and it is recommended that the sample be analyzed by gravimetric point count analysis to lower the detection limit and to aid in asbestos identification.

‡ A "Version" indicated by -"x" after the Lab ID# with a value greater than 1 indicates a sample with amended data. The revision number is reflected by the value of "x".

HAZARDOUS MATERIALS ASSESSMENT

Appendix A.3 – Laboratory Accreditations

National Voluntary Laboratory Accreditation Program

SCOPE OF ACCREDITATION TO ISO/IEC 17025:2017

International Asbestos Testing Laboratories
9000 Commerce Parkway
Suite B
Mt. Laurel, NJ 08054
Mr. Frank E. Ehrenfeld III
Phone: 856-231-9449 Fax: 856-231-9818
Email: frankehrenfeld@iatl.com
http://www.iatl.com

ASBESTOS FIBER ANALYSIS **NVLAP LAB CODE 101165-0**

Bulk Asbestos Analysis

Code	*Description*
18/A01	EPA -- 40 CFR Appendix E to Subpart E of Part 763, Interim Method of the Determination of Asbestos in Bulk Insulation Samples
18/A03	EPA 600/R-93/116: Method for the Determination of Asbestos in Bulk Building Materials

Airborne Asbestos Analysis

Code	*Description*
18/A02	U.S. EPA's "Interim Transmission Electron Microscopy Analytical Methods-Mandatory and Nonmandatory-and Mandatory Section to Determine Completion of Response Actions" as found in 40 CFR, Part 763, Subpart E, Appendix A.

For the National Voluntary Laboratory Accreditation Program

Effective 2023-07-01 through 2024-06-30

Page 1 of 1

United States Department of Commerce
National Institute of Standards and Technology

Certificate of Accreditation to ISO/IEC 17025:2017

NVLAP LAB CODE: 101165-0

International Asbestos Testing Laboratories

Mt. Laurel, NJ

is accredited by the National Voluntary Laboratory Accreditation Program for specific services, listed on the Scope of Accreditation, for:

Asbestos Fiber Analysis

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2017. This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (refer to joint ISO-ILAC-IAF Communique dated January 2009).

2023-07-01 through 2024-06-30

Effective Dates

For the National Voluntary Laboratory Accreditation Program

United States Department of Commerce
National Institute of Standards and Technology

Certificate of Accreditation to ISO/IEC 17025:2017

NVLAP LAB CODE: 101165-0

International Asbestos Testing Laboratories

Mt. Laurel, NJ

is accredited by the National Voluntary Laboratory Accreditation Program for specific services, listed on the Scope of Accreditation, for:

Asbestos Fiber Analysis

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2017. This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (refer to joint ISO-ILAC-IAF Communique on ISO/IEC 17025).

2024-07-01 through 2025-06-30

Effective Dates

For the National Voluntary Laboratory Accreditation Program

National Voluntary Laboratory Accreditation Program

SCOPE OF ACCREDITATION TO ISO/IEC 17025:2017

International Asbestos Testing Laboratories
9000 Commerce Parkway
Suite B
Mt. Laurel, NJ 08054
Mr. Frank E. Ehrenfeld III
Phone: 856-231-9449 Fax: 856-231-9818
Email: frankehrenfeld@iatl.com
http://www.eurofins.com

ASBESTOS FIBER ANALYSIS **NVLAP LAB CODE 101165-0**

Bulk Asbestos Analysis

Code	*Description*
18/A01	EPA -- 40 CFR Appendix E to Subpart E of Part 763, Interim Method of the Determination of Asbestos in Bulk Insulation Samples
18/A03	EPA 600/R-93/116: Method for the Determination of Asbestos in Bulk Building Materials

Airborne Asbestos Analysis

Code	*Description*
18/A02	U.S. EPA's "Interim Transmission Electron Microscopy Analytical Methods-Mandatory and Nonmandatory-and Mandatory Section to Determine Completion of Response Actions" as found in 40 CFR, Part 763, Subpart E, Appendix A.

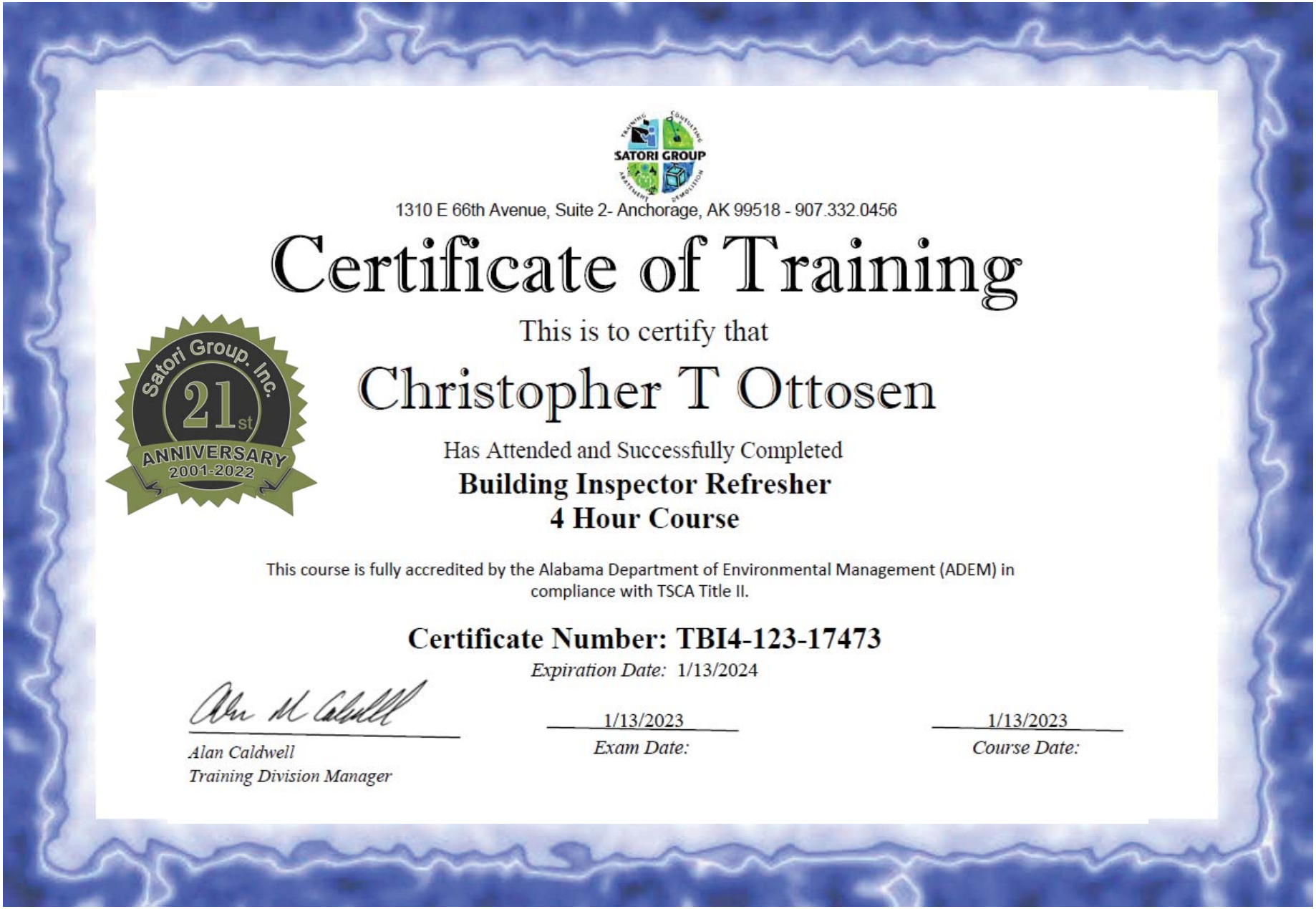
For the National Voluntary Laboratory Accreditation Program

Effective 2024-07-01 through 2025-06-30

Page 1 of 1

HAZARDOUS MATERIALS ASSESSMENT

Appendix A.4 – Asbestos Inspector Certifications



SATORI GROUP

1310 E 66th Avenue, Suite 2- Anchorage, AK 99518 - 907.332.0456

Certificate of Training

Satori Group, Inc. 21st ANNIVERSARY 2001-2022

This is to certify that

Christopher T Ottosen

Has Attended and Successfully Completed

Building Inspector Refresher
4 Hour Course

This course is fully accredited by the Alabama Department of Environmental Management (ADEM) in compliance with TSCA Title II.

Certificate Number: TBI4-123-17473

Expiration Date: 1/13/2024

Alan Caldwell
Training Division Manager

1/13/2023
Exam Date:

1/13/2023
Course Date:



SATORI GROUP

1310 E 66th Avenue, Suite 2- Anchorage, AK 99518 - 907.332.0456

Satori Group, Inc. 23rd ANNIVERSARY 2001-2024

Certificate of Training

This is to certify that

Christopher T Ottosen

Has Attended and Successfully Completed

Building Inspector Refresher
4 Hour Course

This course is fully accredited by the Alabama Department of Environmental Management (ADEM) in compliance with TSCA Title II. This course is a synchronous and online course.

Certificate Number: TBI4-124-18714

Expiration Date: 1/18/2025

Alan M Caldwell

Alan Caldwell
Principal Instructor

1/18/2024
Exam Date:

1/18/2024
Course Date:

HAZARDOUS MATERIALS ASSESSMENT

Appendix B - Lead

HAZARDOUS MATERIALS ASSESSMENT

Appendix B.1 – Table of XRF Readings

Appendix B.1 – Table of XRF Readings

SciApps X-550, Serial No. 00528

RESULTS OF XRF TESTING

HTRW, LLC, Christopher T. Ottosen
October 03, 2023

READING NUMBER	FLOOR	ROOM	COMPONENT	SUBSTRATE	COLOR	CONDITION	Lead (Pb) mg/cm2	+/- ERROR
1	-	-	CALIBRATION CHECK, SRM 2573	WOOD	RED	INTACT	1.026	0.036
2	-	-	CALIBRATION CHECK, SRM 2573	WOOD	RED	INTACT	1.047	0.023
3	-	-	CALIBRATION CHECK, SRM 2573	WOOD	RED	INTACT	1.101	0.049
4	ROOF	ROOF D	PARAPET CAP	METAL	BLUE	INTACT	0.000	0.001
5	ROOF	ROOF D	FASCIA	"PANEL 15"	WHITE	INTACT	0.001	0.001
6	ROOF	ROOF D	TRIM ON FASCIA	METAL	WHITE	INTACT	0.001	0.001
7	ROOF	ROOF D	BUILDING JOINT COPING	METAL	BLUE	INTACT	0.002	0.001
8	ROOF	ROOF B	FASCIA	"PANEL 15"	OFF-WHITE	INTACT	0.001	0.001
9	ROOF	ROOF C	FLASHING	METAL	BLUE	INTACT	0.001	0.001
10	ROOF	ROOF A	SIDING	EIFS	WHITE	INTACT	0.000	0.001
11	ROOF	ROOF A	TRIM ON SIDING	METAL	BLUE	INTACT	0.001	0.001
12	ROOF	ROOF A	PARAPET CAP	METAL	BLUE	INTACT	0.000	0.001
13	ROOF	ROOF B	BUILDING JOINT COPING	METAL	BLUE	INTACT	0.000	0.001
14	ROOF	ROOF A	ROOF MEMBRANE	EPDM	BLACK	INTACT	0.000	0.001
15	ROOF	ROOF A	LOWER-MID COPING	METAL	BLUE	INTACT	0.002	0.001
16	ROOF	ROOF A	UPPER FASCIA	METAL	TAN	INTACT	0.000	0.001
17	ROOF	ROOF A	TRIM ON UPPER FASCIA	METAL	TAN	INTACT	0.001	0.001
18	ROOF	ROOF A	SOFFIT	METAL	TAN	INTACT	0.000	0.001
19	ROOF	ROOF A	DRIP EDGE BELOW FASCIA	METAL	BLUE	INTACT	0.001	0.001
20	ROOF	ROOF A	LOWER FASCIA	METAL	TAN	INTACT	0.000	0.001
21	ROOF	ROOF A	TRIM ON LOWER FASCIA	METAL	TAN	INTACT	0.000	0.001
22	ROOF	ROOF A	ROOF MEMBRANE	EPDM	BLACK	INTACT	0.000	0.001

2023-13-Anchorage School District RFP 2023-619 Design Services:
College Gate Elementary School Roof Replacement
3101 Sunflower Street, Anchorage, Alaska 99508

Appendix B.1

Page 1 of 3

SciApps X-550, Serial No. 00528

RESULTS OF XRF TESTING

HTRW, LLC, Christopher T. Ottosen
October 03, 2023

READING NUMBER	FLOOR	ROOM	COMPONENT	SUBSTRATE	COLOR	CONDITION	Lead (Pb) mg/cm2	+/- ERROR
23	ROOF	ROOF E	WALL	CONCRETE	WHITE	INTACT	0.001	0.001
24	ROOF	ROOF E	BOTTOM FLASHING	METAL	BLUE	INTACT	0.001	0.001
25	ROOF	ROOF E	TRIM ON FASCIA	METAL	WHITE	INTACT	0.000	0.001
26	ROOF	ROOF E	FASCIA	"PANEL 15"	WHITE	INTACT	0.001	0.001
27	ROOF	ROOF E	PARAPET CAP	METAL	BLUE	INTACT	0.001	0.001
28	ROOF	ROOF M	LADDER HANDRAIL	METAL	WHITE	INTACT	0.000	0.001
29	ROOF	ROOF M	LADDER RUNG	METAL	WHITE	INTACT	0.000	0.001
30	ROOF	ROOF M	LADDER SUPPORT	METAL	WHITE	INTACT	0.000	0.001
31	ROOF	ROOF J	SOLDER ON VTR	METAL	SILVER	INTACT	0.000	0.001
32	ROOF	ROOF J	ROOF PANEL INSULATION	FOAM	PINK	INTACT	0.000	0.001
33	ROOF	ROOF J	LADDER SUPPORT	WOOD	WHITE	FLAKING	0.001	0.001
34	ROOF	ROOF J	SIDING	EIFS	WHITE	INTACT	0.000	0.001
35	ROOF	ROOF J	SOLDER ON VTR	METAL	SILVER	INTACT	0.000	0.001
36	ROOF	ROOF J	SOLDER ON VTR	METAL	SILVER	INTACT	-0.001	0.001
37	ROOF	ROOF J	LADDER SUPPORT	METAL	WHITE	INTACT	0.000	0.001
38	ROOF	ROOF J	LADDER HANDRAIL	METAL	WHITE	INTACT	0.001	0.001
39	ROOF	ROOF J	LADDER RUNG	METAL	WHITE	INTACT	0.000	0.001
40	-	-	CALIBRATION CHECK, SRM 2573	WOOD	RED	INTACT	1.078	0.037
41	-	-	CALIBRATION CHECK, SRM 2573	WOOD	RED	INTACT	1.111	0.049
42	-	-	CALIBRATION CHECK, SRM 2573	WOOD	RED	INTACT	1.035	0.017

SciApps X-550, Serial No. 00528

RESULTS OF XRF TESTING

HTRW, LLC, Christopher T. Ottosen
October 03, 2023

READING NUMBER	FLOOR	ROOM	COMPONENT	SUBSTRATE	COLOR	CONDITION	Lead (Pb) mg/cm2	+/- ERROR

- Calibration Check: The SciApps X-550 XRF instrument calibration is validated using the National Institute of Standards and Technology, Standard Reference Material 2573 (NIST SRM 2573), Lead Paint Film for Building Surfaces, which is red in color with a certified lead concentration of 1.040 +/- 0.064 mg/cm^2. The instrument's calibration check limits are from 0.8 to 1.2 mg/cm^2 (inclusive) when using the NIST SRM 2573 in accordance with the Performance Characteristic Sheet (PCS).

SciApps X-550, Serial No. 00528

RESULTS OF XRF TESTING

HTRW, LLC, Christopher T. Ottosen
May 28-29, 2024

READING NUMBER	ROOM	COMPONENT	SUBSTRATE	COLOR	CONDITION	Lead (Pb) mg/cm2	+/- ERROR
L01	-	CALIBRATION CHECK, SRM 2573	WOOD	RED	INTACT	1.010	0.033
L02	-	CALIBRATION CHECK, SRM 2573	WOOD	RED	INTACT	0.988	0.032
L03	-	CALIBRATION CHECK, SRM 2573	WOOD	RED	INTACT	1.045	0.034
L04	-	CALIBRATION CHECK, SRM 2573	WOOD	RED	INTACT	1.014	0.019
L05	BOOK ROOM 44	GCT1	CELLULOSE WITH ASBESTOS	OFF-WHITE	INTACT	0.000	0.001
L06	BOOK ROOM 44	WALL	VINYL-COVERED GYPSUM BOARD	BEIGE	INTACT	0.000	0.001
L07	BOOK ROOM 44	SMALLER CORNER GUARD	PLASTIC	WHITE	INTACT	0.002	0.001
L08	BOOK ROOM 44	LARGER CORNER GUARD	PLASTIC	BEIGE	INTACT	0.002	0.001
L09	CORRIDOR 420	WALL	GYPSUM BOARD	OFF-WHITE	INTACT	0.023	0.006
L10	VESTIBULE 430	JOIST	METAL	RED-BROWN	INTACT	0.025	0.007
L11	VESTIBULE 430	WALL	GYPSUM BOARD	OFF-WHITE	INTACT	0.000	0.001
L12	EXTERIOR	EDGE OF PRECAST WALL PANEL	CONCRETE	WHITE	INTACT	0.000	0.001
L13	EXTERIOR	LOWER SOFFIT	CEMENT ASBESTOS BOARD	BEIGE	INTACT	0.005	0.003
L14	EXTERIOR	FLASHING AT TOP OF PRECAST WALL PANEL	METAL	WHITE	PEELING	0.041	0.010
L15	EXTERIOR	LOWER FASCIA PANEL	CEMENT ASBESTOS BOARD	BEIGE	INTACT	0.006	0.003
L16	EXTERIOR	UPPER SOFFIT	CEMENT ASBESTOS BOARD	BEIGE	INTACT	0.004	0.002
L17	EXTERIOR	MID-LEVEL FASCIA PANEL	"PANEL 15"	BEIGE	INTACT	-0.002	0.001
L18	EXTERIOR	FLASHING AT TOP OF MID-LEVEL FASCIA PANEL	METAL	BLUE	INTACT	0.000	0.001
L19	CLASSROOM 43	BEAM	METAL	RED-BROWN	INTACT	0.877	0.031
L20	WORK ROOM 53	WALL	GYPSUM BOARD	WHITE	INTACT	0.002	0.001
L21	WORK ROOM 53	WALL	GYPSUM BOARD	WHITE	INTACT	0.001	0.001
L22	CORRIDOR 625	WALL	GYPSUM BOARD	WHITE	INTACT	0.000	0.001

2023-13-Anchorage School District RFP 2023-619 Design Services:
College Gate Elementary School Roof Replacement
3101 Sunflower Street, Anchorage, Alaska 99508

Appendix B.1

Page 1 of 6

SciApps X-550, Serial No. 00528

RESULTS OF XRF TESTING

HTRW, LLC, Christopher T. Ottosen
May 28-29, 2024

READING NUMBER	ROOM	COMPONENT	SUBSTRATE	COLOR	CONDITION	Lead (Pb) mg/cm2	+/- ERROR
L23	CORRIDOR 625	SOFFIT	VINYL-COVERED GYPSUM BOARD	WHITE	INTACT	0.002	0.002
L24	CORRIDOR 625	BEAM	METAL	RED-BROWN	INTACT	0.944	0.033
L25	CORRIDOR 625	CHANNEL	METAL	RED-BROWN	INTACT	1.077	0.034
L26	CORRIDOR 625	ROOF DECK	METAL	LIGHT GREY	INTACT	0.287	0.298
L27	-	CALIBRATION CHECK, SRM 2573	WOOD	RED	INTACT	1.090	0.035
L28	-	CALIBRATION CHECK, SRM 2573	WOOD	RED	INTACT	1.056	0.034
L29	-	CALIBRATION CHECK, SRM 2573	WOOD	RED	INTACT	1.028	0.033
L30	CORRIDOR 750	WALL	GYPSUM BOARD	WHITE	INTACT	0.000	0.001
L31	CORRIDOR 750	WALL	CONCRETE	WHITE	INTACT	0.000	0.001
L32	CLASSROOM 65	SOLDER ON VTR PIPING	METAL	SILVER	INTACT	0.007	0.004
L33	CLASSROOM 65	HORIZONTAL TRIM ON CUTOUT THRU FORMER WALL	WOOD	WHITE	INTACT	0.000	0.001
L34	CLASSROOM 65	VERTICAL TRIM ON CUTOUT THRU FORMER WALL	WOOD	WHITE	INTACT	0.000	0.001
L35	CLASSROOM 65	OLDER CONCEALED WALL	GYPSUM BOARD	YELLOW-GREEN	INTACT	0.000	0.001
L36	CLASSROOM 65	WALL	VINYL-COVERED GYPSUM BOARD	WHITE	INTACT	0.001	0.001
L37	CLASSROOM 65	ANGLE	METAL	BROWN	INTACT	0.005	0.004
L38	CLASSROOM 65	CHANNEL	METAL	RED-BROWN	INTACT	0.794	0.029
L39	CLASSROOM 65	BEAM	METAL	RED-BROWN	INTACT	0.651	0.026
L40	CLASSROOM 65	ROOF DECK	METAL	LIGHT GREY	PEELING	0.135	0.055
L41	-	CALIBRATION CHECK, SRM 2573	WOOD	RED	INTACT	1.005	0.033
L42	-	CALIBRATION CHECK, SRM 2573	WOOD	RED	INTACT	1.044	0.033
L43	-	CALIBRATION CHECK, SRM 2573	WOOD	RED	INTACT	1.012	0.033
L44	-	CALIBRATION CHECK, SRM 2573	WOOD	RED	INTACT	1.005	0.032

2023-13-Anchorage School District RFP 2023-619 Design Services:
College Gate Elementary School Roof Replacement
3101 Sunflower Street, Anchorage, Alaska 99508

Appendix B.1

Page 2 of 6

SciApps X-550, Serial No. 00528

RESULTS OF XRF TESTING

HTRW, LLC, Christopher T. Ottosen
May 28-29, 2024

READING NUMBER	ROOM	COMPONENT	SUBSTRATE	COLOR	CONDITION	Lead (Pb) mg/cm2	+/- ERROR
L45	-	CALIBRATION CHECK, SRM 2573	WOOD	RED	INTACT	1.008	0.032
L46	-	CALIBRATION CHECK, SRM 2573	WOOD	RED	INTACT	1.079	0.034
L47	-	CALIBRATION CHECK, SRM 2573	WOOD	RED	INTACT	1.030	0.019
L48	MPR 67	WALL	CONCRETE	WHITE	INTACT	0.077	0.020
L49	MPR 67	TRIM UNDER PERFORATED WALL PANELS	WOOD	WHITE	INTACT	0.302	0.025
L50	MPR 67	STRIPE AT BOTTOM OF PERFORATED WALL PANELS	WOOD	BLUE	INTACT	0.252	0.080
L51	MPR 67	PERFORATED WALL PANEL	WOOD	OFF-WHITE	INTACT	0.253	0.078
L52	MPR 67	PAINT ON RAIN LEADER ELBOW	CLOTH-WRAPPED ASBESTOS	OFF-WHITE	INTACT	0.332	0.024
L53	VESTIBULE 67A	WALL	CONCRETE	WHITE	INTACT	0.000	0.001
L54	VESTIBULE 67A	COLUMN	METAL	WHITE	INTACT	0.019	0.007
L55	VESTIBULE 67A	WALL	CONCRETE	WHITE	INTACT	-0.001	0.001
L56	VESTIBULE 67A	CROSS-BRACE	CONCRETE BLOCK	WHITE	INTACT	-0.001	0.001
L57	BOILER ROOM 74	LADDER	METAL	RED-BROWN	INTACT	1.764	0.046
L58	KITCHEN STORAGE 68	WALL	METAL	WHITE	INTACT	0.001	0.001
L59	KITCHEN STORAGE 68	WALL	CONCRETE BLOCK	WHITE	INTACT	0.002	0.002
L60	KITCHEN STORAGE 68	COLUMN	METAL	RED-BROWN	INTACT	0.834	0.031
L61	KITCHEN STORAGE 68	BEAM	METAL	RED-BROWN	INTACT	0.774	0.029
L62	KITCHEN STORAGE 68	BRACKET CONNECTING BEAM TO THE CONCRETE WALL	METAL	RED-BROWN	INTACT	0.703	0.028
L63	"RAVEN HOUSE" IN COURTYARD	SOLDER ON STAINED GLASS WINDOW	METAL	SILVER	INTACT	4.417	0.099
L64	"RAVEN HOUSE" IN COURTYARD	"GUTTER/SPOUT"	METAL	DARK BROWN	INTACT	0.000	0.001
L65	"RAVEN HOUSE" IN COURTYARD	SHEET METAL ROOF	METAL	DARK BROWN	INTACT	0.000	0.001
L66	COURTYARD	LOWER FASCIA PANEL	CEMENT ASBESTOS BOARD	BROWN	INTACT	0.009	0.005

2023-13-Anchorage School District RFP 2023-619 Design Services:
College Gate Elementary School Roof Replacement
3101 Sunflower Street, Anchorage, Alaska 99508

Appendix B.1

Page 3 of 6

SciApps X-550, Serial No. 00528

RESULTS OF XRF TESTING

HTRW, LLC, Christopher T. Ottosen
May 28-29, 2024

READING NUMBER	ROOM	COMPONENT	SUBSTRATE	COLOR	CONDITION	Lead (Pb) mg/cm2	+/- ERROR
L67	COURTYARD	SOFFIT	CEMENT ASBESTOS BOARD	BROWN	INTACT	0.004	0.003
L68	COURTYARD	FLASHING AT TOP OF PRECAST WALL PANEL	METAL	BLUE	INTACT	0.023	0.006
L69	COURTYARD	LOWER FASCIA PANEL	COMPOSITE	BROWN	INTACT	-0.001	0.001
L70	COURTYARD	SOFFIT	COMPOSITE	BROWN	INTACT	-0.001	0.001
L71	COURTYARD	MID-LEVEL FASCIA PANEL	COMPOSITE	BROWN	INTACT	0.000	0.001
L72	COURTYARD	FLASHING AT TOP OF MID-LEVEL FASCIA PANEL	METAL	BLUE	INTACT	0.001	0.001
L73	COURTYARD	FLASHING AT TOP OF PRECAST WALL PANEL	METAL	BLUE	INTACT	0.000	0.001
L74	CORRIDOR 220	BEAM	METAL	RED-BROWN	INTACT	0.769	0.028
L75	CORRIDOR 220	ROOF DECK	METAL	LIGHT GREY	INTACT	0.007	0.005
L76	-	CALIBRATION CHECK, SRM 2573	WOOD	RED	INTACT	1.020	0.033
L77	-	CALIBRATION CHECK, SRM 2573	WOOD	RED	INTACT	1.013	0.033
L78	-	CALIBRATION CHECK, SRM 2573	WOOD	RED	INTACT	1.007	0.033
L79	EXTERIOR	WALL	CONCRETE BLOCK	WHITE	INTACT	0.000	0.001
L80	EXTERIOR	SPLIT-FACE CONCRETE BLOCK	CONCRETE BLOCK	BROWN-TAN	INTACT	0.001	0.001
L81	EXTERIOR	SPLIT-FACE CONCRETE BLOCK	CONCRETE BLOCK	BROWN-GREY	INTACT	0.000	0.001
L82	EXTERIOR	SPLIT-FACE CONCRETE BLOCK	CONCRETE BLOCK	BROWN-PURPLE	INTACT	-0.001	0.001
L83	EXTERIOR	WALL	CONCRETE BLOCK	BEIGE	INTACT	0.000	0.001
L84	EXTERIOR	WALL	CONCRETE BLOCK	BEIGE	INTACT	-0.001	0.001
L85	EXTERIOR	WALL	CONCRETE BLOCK	WHITE	INTACT	0.000	0.001
L86	EXTERIOR	LOWER FASCIA PANEL	MANUFACTURED HARDBOARD	BEIGE	INTACT	0.001	0.001
L87	EXTERIOR	MID-LEVEL SOFFIT	MANUFACTURED HARDBOARD	BEIGE	INTACT	0.001	0.001
L88	EXTERIOR	FLASHING AT MID-LEVEL	METAL	BEIGE	INTACT	0.000	0.001

2023-13-Anchorage School District RFP 2023-619 Design Services:
College Gate Elementary School Roof Replacement
3101 Sunflower Street, Anchorage, Alaska 99508

Appendix B.1

Page 4 of 6

SciApps X-550, Serial No. 00528

RESULTS OF XRF TESTING

HTRW, LLC, Christopher T. Ottosen
May 28-29, 2024

READING NUMBER	ROOM	COMPONENT	SUBSTRATE	COLOR	CONDITION	Lead (Pb) mg/cm2	+/- ERROR
L89	EXTERIOR	FLASHING AT TOP OF PRECAST WALL PANEL	METAL	BLUE	INTACT	0.001	0.001
L90	EXTERIOR	WALL	CONCRETE BLOCK	BEIGE	INTACT	0.002	0.001
L91	EXTERIOR	WALL	CEMENT ASBESTOS BOARD	WHITE	INTACT	0.000	0.001
L92	-	CALIBRATION CHECK, SRM 2573	WOOD	RED	INTACT	1.039	0.033
L93	-	CALIBRATION CHECK, SRM 2573	WOOD	RED	INTACT	0.986	0.032
L94	-	CALIBRATION CHECK, SRM 2573	WOOD	RED	INTACT	1.008	0.033
L95	-	CALIBRATION CHECK, SRM 2573	WOOD	RED	INTACT	0.992	0.032
L96	-	CALIBRATION CHECK, SRM 2573	WOOD	RED	INTACT	0.997	0.033
L97	-	CALIBRATION CHECK, SRM 2573	WOOD	RED	INTACT	0.996	0.032
L98	-	CALIBRATION CHECK, SRM 2573	WOOD	RED	INTACT	0.995	0.019
L99	CORRIDOR 700	WALL	CONCRETE BLOCK	WHITE	INTACT	0.000	0.001
L100	CENTRAL STORAGE 66	CEILING	GYPSUM BOARD	WHITE	INTACT	0.000	0.001
L101	CENTRAL STORAGE 66	ANGLE BETWEEN JOISTS	METAL	BROWN	INTACT	-0.001	0.002
L102	CENTRAL STORAGE 66	JOIST	METAL	BROWN	INTACT	-0.001	0.001
L103	GYMNASIUM 70	WALL PANEL	WOOD	WHITE	INTACT	0.000	0.001
L104	MECHANICAL 72	WALL	CONCRETE BLOCK	WHITE	INTACT	0.000	0.001
L105	MECHANICAL 72	WALL	GYPSUM BOARD	WHITE	INTACT	0.000	0.001
L106	CORRIDOR 150	COLUMN	METAL	LIGHT TEAL	INTACT	0.001	0.001
L107	CORRIDOR 150	WALL	CONCRETE BLOCK	GREY	INTACT	0.001	0.001
L108	CORRIDOR 150	WALL	CONCRETE BLOCK	BEIGE-GREY	INTACT	0.001	0.001
L109	CORRIDOR 150	WALL	CONCRETE BLOCK	DARK BROWN	INTACT	-0.001	0.001
L110	CLASSROOM 15	JOIST	METAL	BROWN	INTACT	0.001	0.002

2023-13-Anchorage School District RFP 2023-619 Design Services:
College Gate Elementary School Roof Replacement
3101 Sunflower Street, Anchorage, Alaska 99508

Appendix B.1

Page 5 of 6

SciApps X-550, Serial No. 00528

RESULTS OF XRF TESTING

HTRW, LLC, Christopher T. Ottosen
May 28-29, 2024

READING NUMBER	ROOM	COMPONENT	SUBSTRATE	COLOR	CONDITION	Lead (Pb) mg/cm2	+/- ERROR
L111	CLASSROOM 15	ANGLE BETWEEN JOISTS	METAL	BROWN	INTACT	0.001	0.002
L112	CLASSROOM 15	BEAM	METAL	BROWN	INTACT	0.001	0.001
L113	CLASSROOM 15	LARGE ANGLE AT BEAM	METAL	BROWN	INTACT	-0.003	0.001
L114	ROOM C102	BEAM	METAL	BROWN	INTACT	-0.001	0.001
L115	-	CALIBRATION CHECK, SRM 2573	WOOD	RED	INTACT	1.032	0.033
L116	-	CALIBRATION CHECK, SRM 2573	WOOD	RED	INTACT	0.993	0.032
L117	-	CALIBRATION CHECK, SRM 2573	WOOD	RED	INTACT	0.994	0.032

- Calibration Check: The SciApps X-550 XRF instrument calibration is validated using the National Institute of Standards and Technology, Standard Reference Material 2573 (NIST SRM 2573), Lead Paint Film for Building Surfaces, which is red in color with a certified lead concentration of 1.040 +/- 0.064 mg/cm^2. The instrument's calibration check limits are from 0.8 to 1.2 mg/cm^2 (inclusive) when using the NIST SRM 2573 in accordance with the Performance Characteristic Sheet (PCS).

HAZARDOUS MATERIALS ASSESSMENT

Appendix B.2 – Lead Inspector Certifications

United States Environmental Protection Agency

This is to certify that



Christopher T Ottosen

has fulfilled the requirements of the Toxic Substances Control Act (TSCA) Section 402, and has received certification to conduct lead-based paint activities pursuant to 40 CFR Part 745.226 as:

Risk Assessor

In the Jurisdiction of:

All EPA Administered Lead-based Paint Activities Program States, Tribes and Territories

This certification is valid from the date of issuance and expires September 29, 2024

LBP-R-I157245-2
Certification #

February 10, 2021
Issued On

Adrienne Priselac, Manager, Toxics Office
Land Division

United States Environmental Protection Agency

This is to certify that



Christopher T Ottosen

has fulfilled the requirements of the Toxic Substances Control Act (TSCA) Section 402, and has received certification to conduct lead-based paint activities pursuant to 40 CFR Part 745.226 as:

Risk Assessor

In the Jurisdiction of:

All EPA Administered Lead-based Paint Activities Program States, Tribes and Territories

This certification is valid from the date of issuance and expires September 29, 2027

LBP-R-I157245-3
Certification #

February 27, 2024
Issued On

Adrienne Priselac, Manager, Toxics Office
Land Division

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

February 04, 2022

Christopher Ottosen
HTRW, LLC
11471 Business Blvd
Eagle River, AK 99577

OFFICE OF CHEMICAL SAFETY
AND POLLUTION PREVENTION

Dear Christopher Ottosen:

Thank you for applying to the U.S. Environmental Protection Agency (EPA) for certification to conduct Lead-based Paint Activities in target housing and child-occupied facilities. I am pleased to inform you that, pursuant to 40 CFR Part 745, Subpart L, your lead-based paint activities firm is certified. Your certificate is enclosed.

This certification **expires on February 15, 2025 and is valid in All EPA Administered States, Tribes, and Territories**. However, if a State in which you are certified obtains program authorization during the term of this certification, the scope of your certification will be diminished to exclude the affected area.

Your EPA firm certification is subject to the following restrictions:

1) Individual states and Indian tribes, whether authorized or not, are not required to accept EPA certification and may accept or reject it under its own authority. Please be aware that your EPA certification does not relieve you of any obligations you may have to any State or Indian tribe regarding lead-based paint activities.

2) EPA certification is specific and limited as described above. If you wish to obtain certification in other lead-based paint disciplines, you must apply separately.

3) In advertising the EPA certification, firms must indicate clearly that the firm is certified only for purposes of Section 402 of TSCA. Failure to accurately state EPA certification conditions could result in EPA suspending or withdrawing certification.

4) EPA may conduct audits and/or inspections to ensure continued compliance with regulatory standards, and may revoke or suspend its certification if subsequent alterations or deviations result with the firm no longer meeting the standards found at 40 CFR Part 745, Subpart L.

If you have questions about the lead-based paint activities rule or need assistance, please contact the Regional Lead Coordinator, Kim Farnham, of the EPA Region 10 staff at 206-553-6697. If you have any questions about your firm certification, please contact the National Lead Information Center at 1-800-424-LEAD and refer to **Application ID number A786633**. Congratulations, and thank you for your interest in being a certified abatement firm.

Sincerely,

Michelle Price, Chief
Lead, Heavy Metals, and Inorganics Branch

Enclosures

Internet Address (URL) • http://www.epa.gov
Recycled/Recyclable • Printed with Vegetable Oil Based Inks on 100% Postconsumer, Process Chlorine Free Recycled Paper

United States Environmental Protection Agency

This is to certify that

HTRW, LLC

has fulfilled the requirements of the Toxic Substances Control Act (TSCA) Section 402, and has received certification to conduct lead-based paint activities pursuant to 40 CFR Part 745.226

In the Jurisdiction of:

All EPA Administered Lead-based Paint Activities Program States, Tribes and Territories

This certification is valid from the date of issuance and expires February 15, 2025

LBP-F232766-1
Certification #

February 01, 2022
Issued On

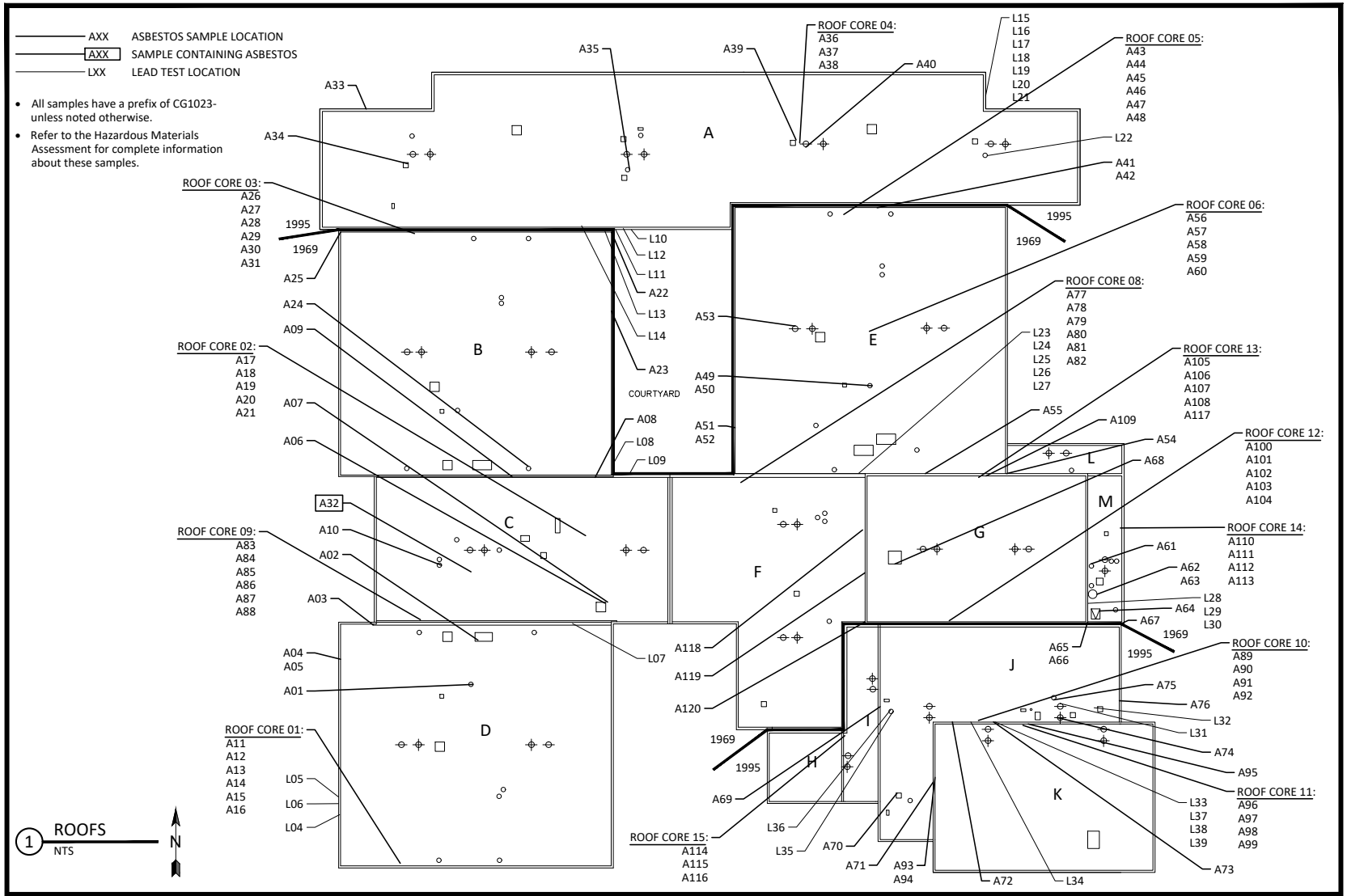
Michelle Price, Chief
Lead, Heavy Metals, and Inorganics Branch

HAZARDOUS MATERIALS ASSESSMENT

Appendix C – Other Common Hazardous Building Materials (no sampling of these materials was performed)

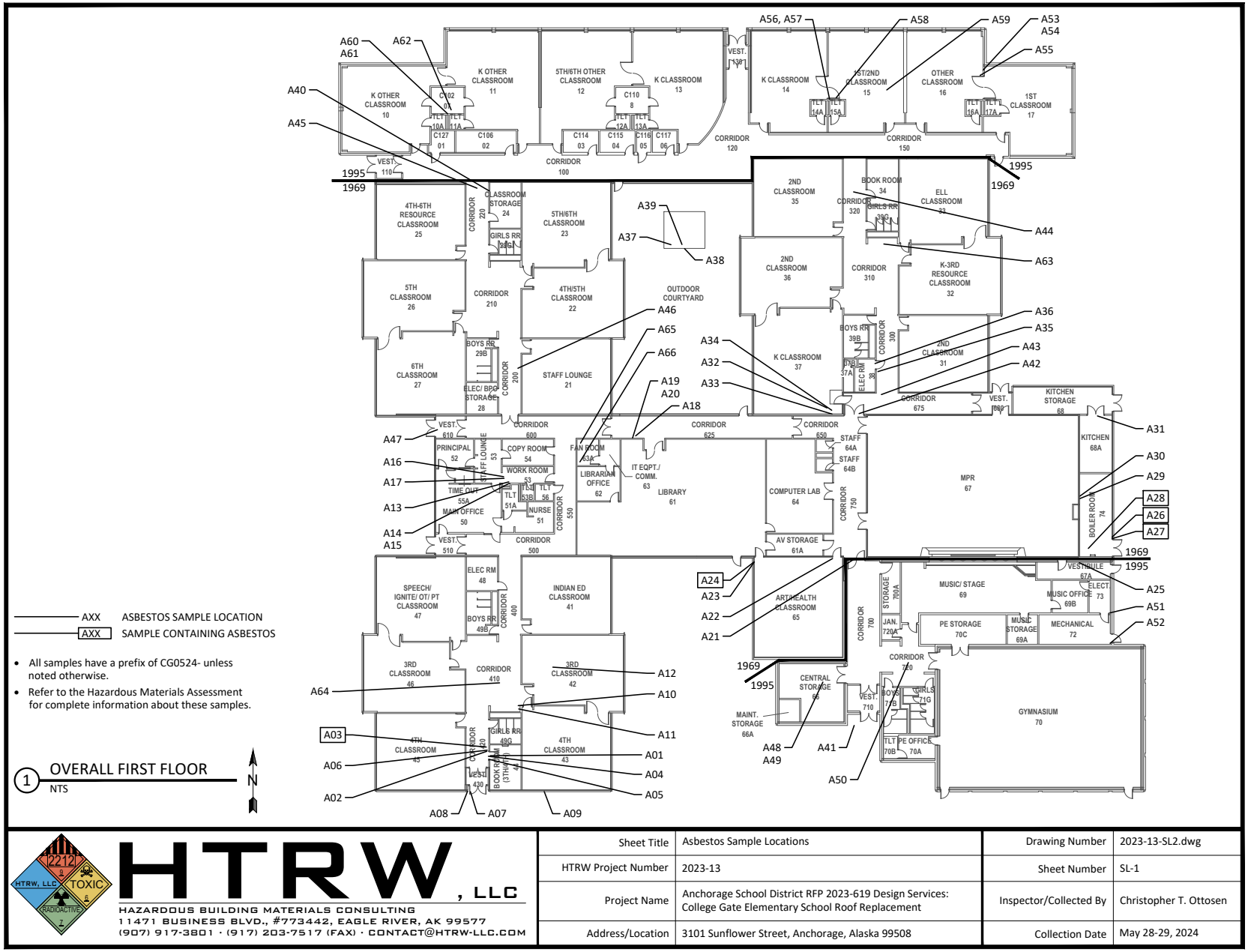
HAZARDOUS MATERIALS ASSESSMENT

Appendix D – Drawings of Asbestos and Lead Test Locations



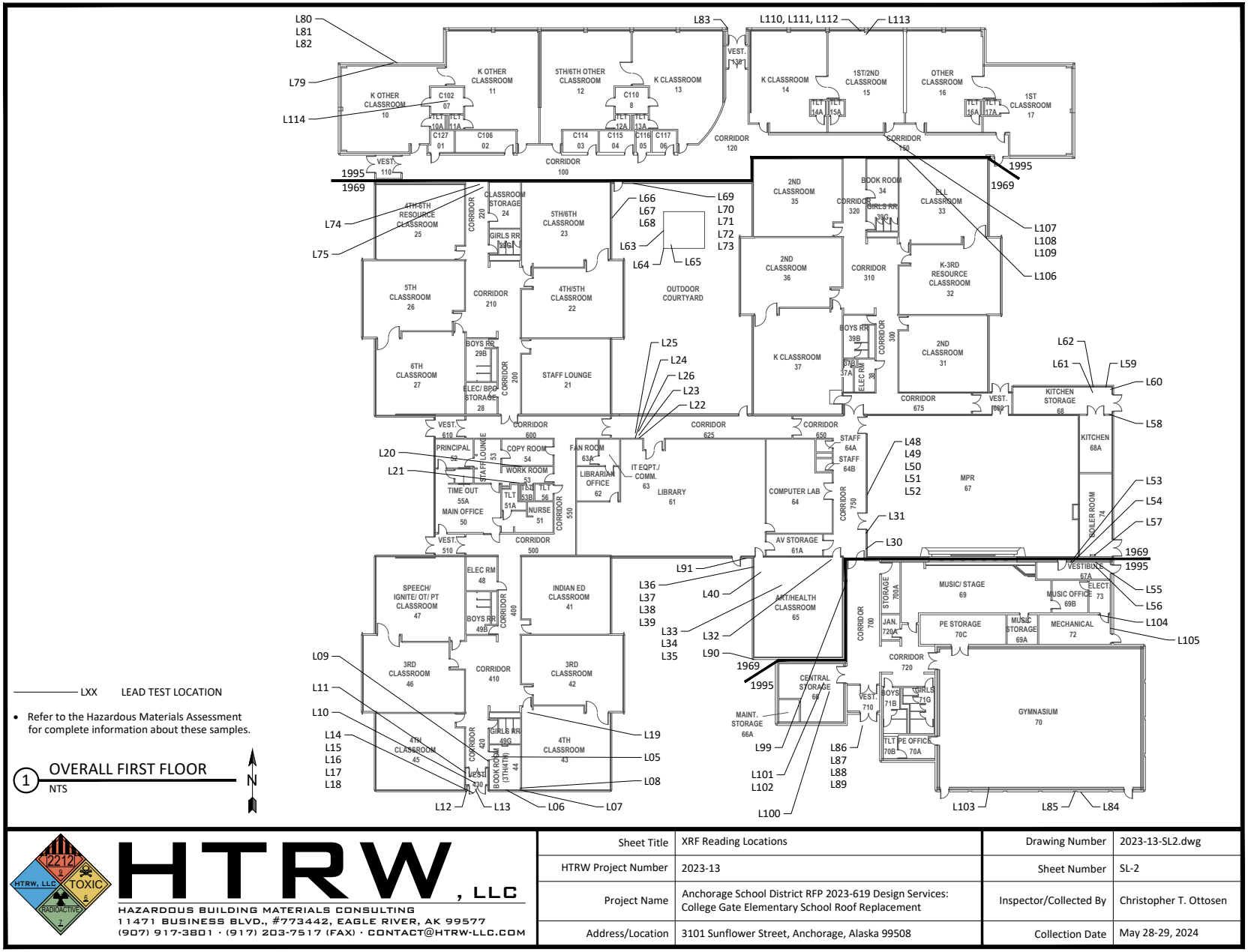
Sheet Title	Asbestos Sample Locations and XRF Reading Locations	Drawing Number	2023-13-SL1.dwg
HTRW Project Number	2023-13	Sheet Number	SL-1
Project Name	Anchorage School District RFP 2023-619 Design Services: College Gate Elementary School Roof Replacement	Inspector/Collected By	Christopher T. Ottosen
Address/Location	3101 Sunflower Street, Anchorage, Alaska 99508	Collection Date	October 03-04, 2023

HTRW, LLC
HAZARDOUS BUILDING MATERIALS CONSULTING
11471 BUSINESS BLVD., #773442, EAGLE RIVER, AK 99577
(907) 917-3801 · (917) 203-7517 (FAX) · CONTACT@HTRW-LLC.COM



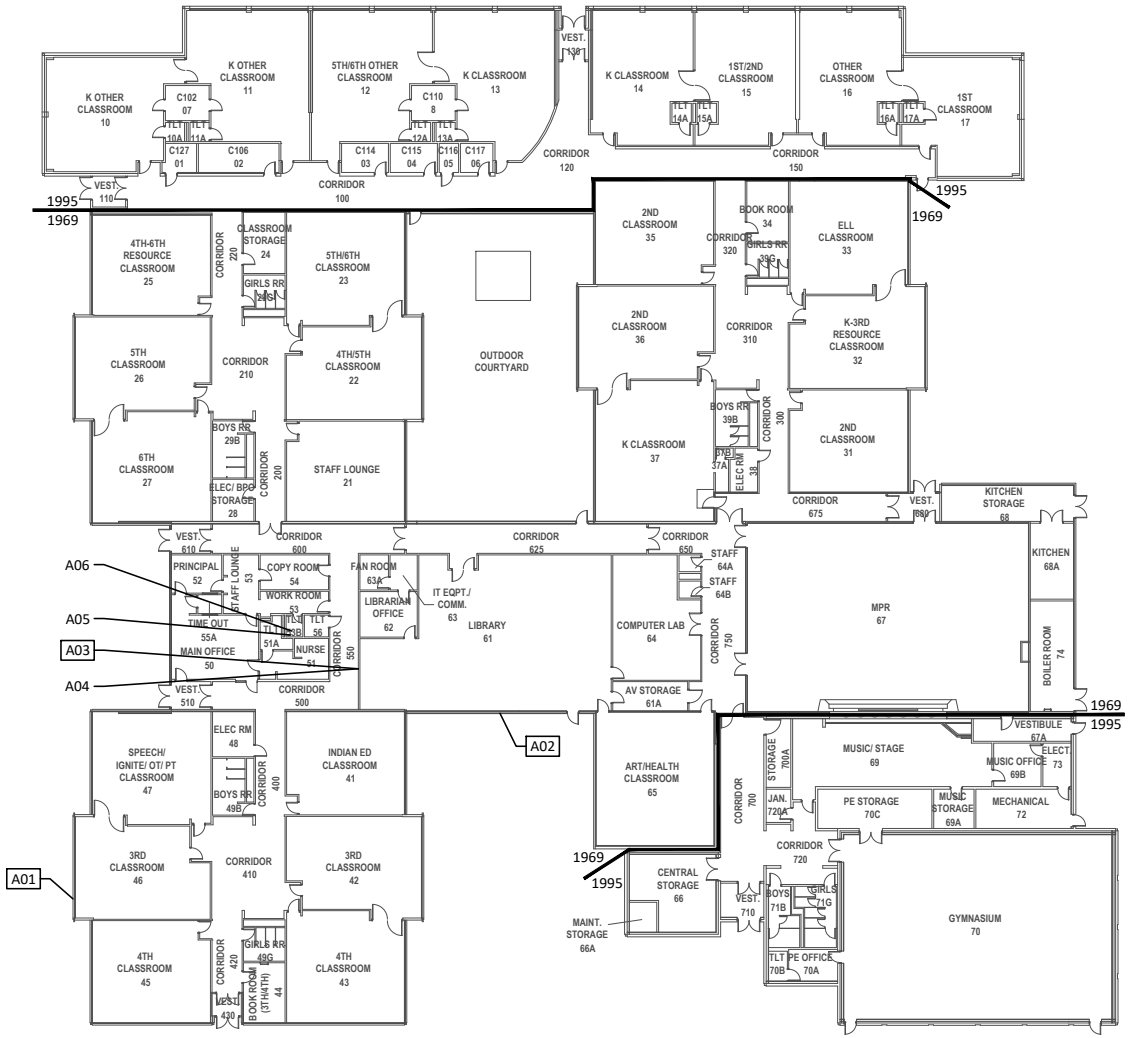
HTRW, LLC
HAZARDOUS BUILDING MATERIALS CONSULTING
11471 BUSINESS BLVD., #773442, EAGLE RIVER, AK 99577
(907) 917-3801 · (917) 203-7517 (FAX) · CONTACT@HTRW-LLC.COM

Sheet Title	Asbestos Sample Locations	Drawing Number	2023-13-SL2.dwg
HTRW Project Number	2023-13	Sheet Number	SL-1
Project Name	Anchorage School District RFP 2023-619 Design Services: College Gate Elementary School Roof Replacement	Inspector/Collected By	Christopher T. Ottosen
Address/Location	3101 Sunflower Street, Anchorage, Alaska 99508	Collection Date	May 28-29, 2024



HTRW, LLC
HAZARDOUS BUILDING MATERIALS CONSULTING
11471 BUSINESS BLVD., #773442, EAGLE RIVER, AK 99577
(907) 917-3801 · (917) 203-7517 (FAX) · CONTACT@HTRW-LLC.COM

Sheet Title	XRF Reading Locations	Drawing Number	2023-13-SL2.dwg
HTRW Project Number	2023-13	Sheet Number	SL-2
Project Name	Anchorage School District RFP 2023-619 Design Services: College Gate Elementary School Roof Replacement	Inspector/Collected By	Christopher T. Ottosen
Address/Location	3101 Sunflower Street, Anchorage, Alaska 99508	Collection Date	May 28-29, 2024



AXX ASBESTOS SAMPLE LOCATION

AXX SAMPLE CONTAINING ASBESTOS

- All samples have a prefix of CG0724- unless noted otherwise.
- Refer to the Hazardous Materials Assessment for complete information about these samples.

1 OVERALL FIRST FLOOR
NTS

N

HTRW, LLC
HAZARDOUS BUILDING MATERIALS CONSULTING
11471 BUSINESS BLVD., #773442, EAGLE RIVER, AK 99577
(907) 917-3801 · (917) 203-7517 (FAX) · CONTACT@HTRW-LLC.COM

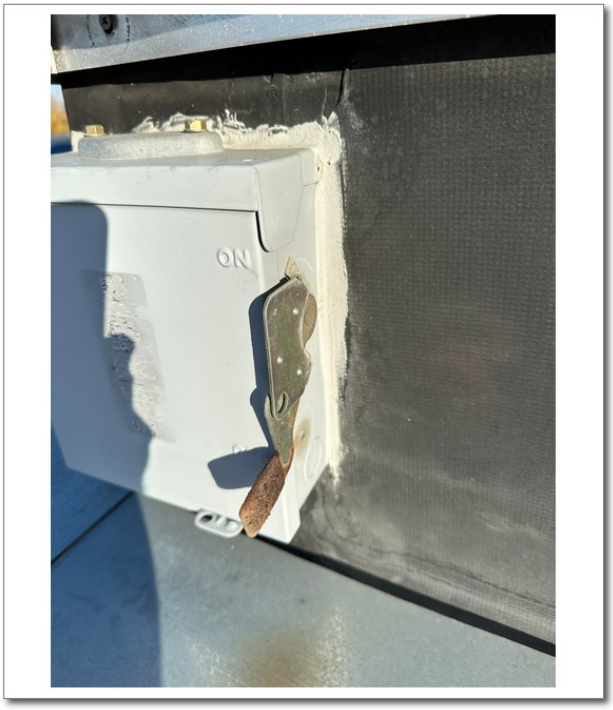
Sheet Title	Asbestos Sample Locations	Drawing Number	2023-13-SL3.dwg
HTRW Project Number	2023-13	Sheet Number	SL-1
Project Name	Anchorage School District RFP 2023-619 Design Services: College Gate Elementary School Roof Replacement	Inspector/Collected By	Christopher T. Ottosen
Address/Location	3101 Sunflower Street, Anchorage, Alaska 99508	Collection Date	July 24, 2024

HAZARDOUS MATERIALS ASSESSMENT

Appendix E – Supplemental Information



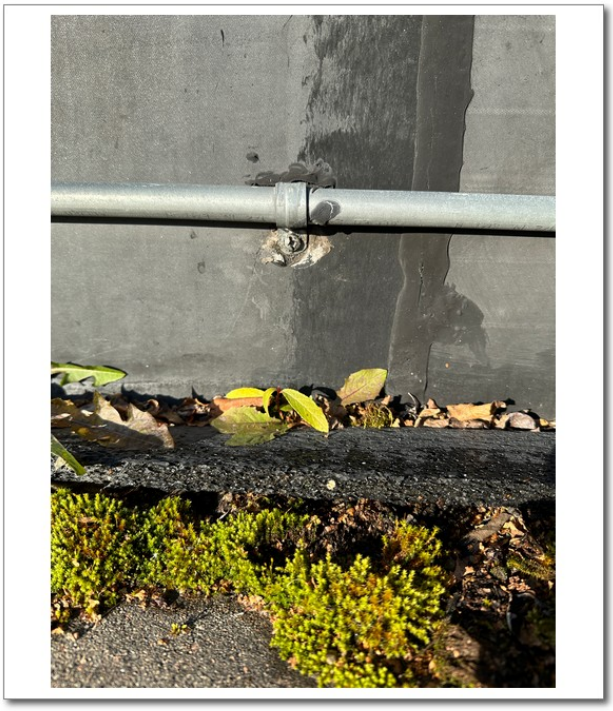
(Photo 1; 2023-10-03 10:22)



(Photo 2; 2023-10-03 10:25)



(Photo 3; 2023-10-03 10:27)



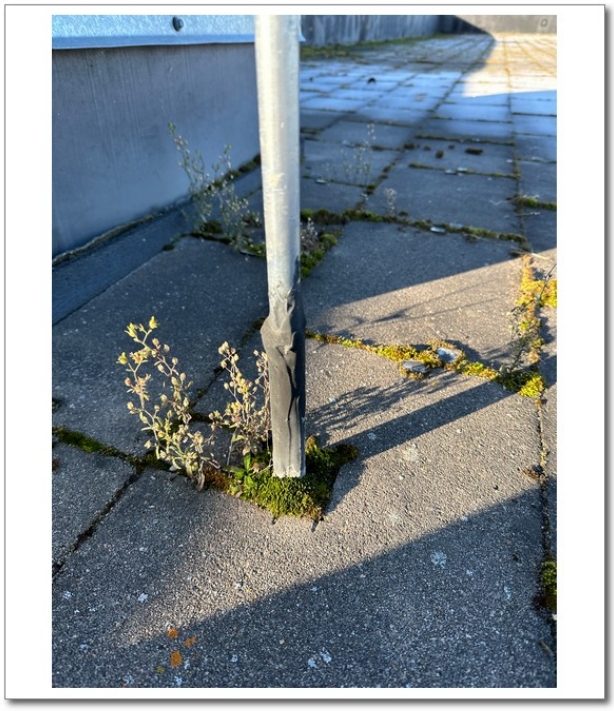
(Photo 4; 2023-10-03 10:30)



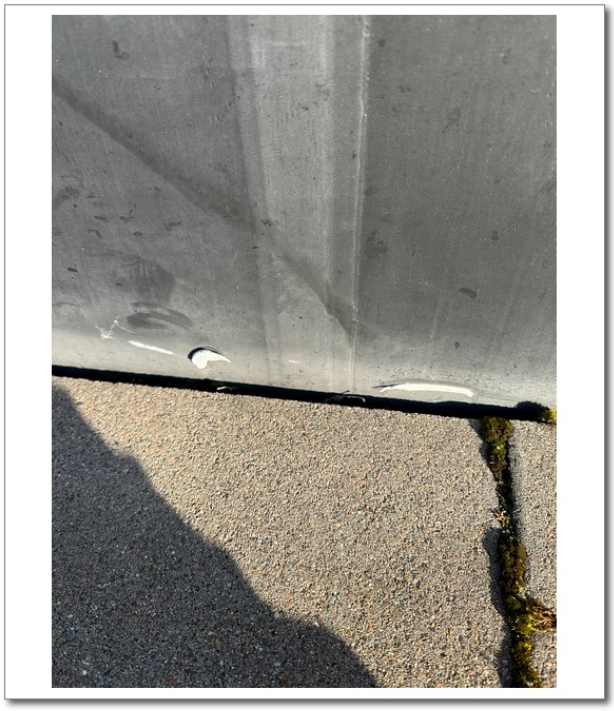
(Photo 5; 2023-10-03 10:30)



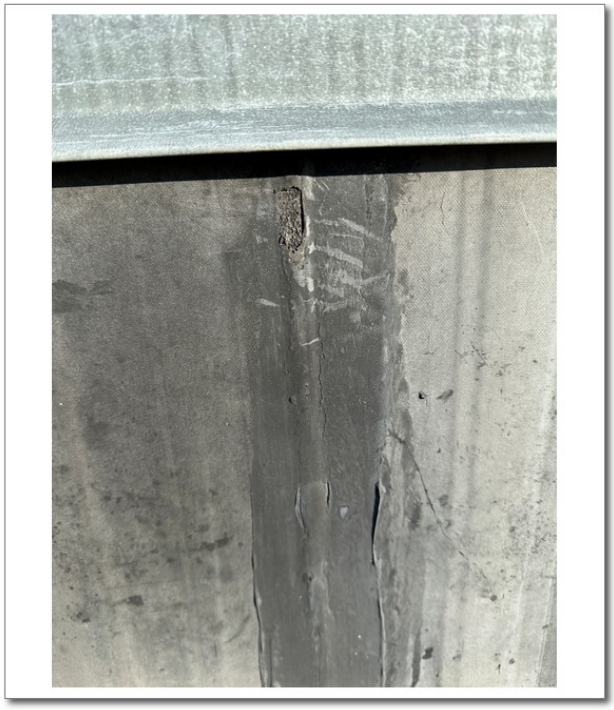
(Photo 6; 2023-10-03 10:37)



(Photo 7; 2023-10-03 10:38)



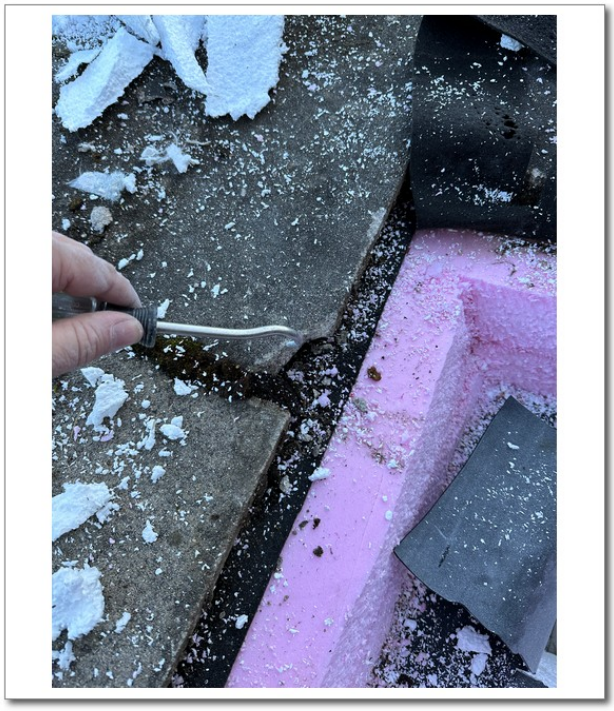
(Photo 8; 2023-10-03 10:39)



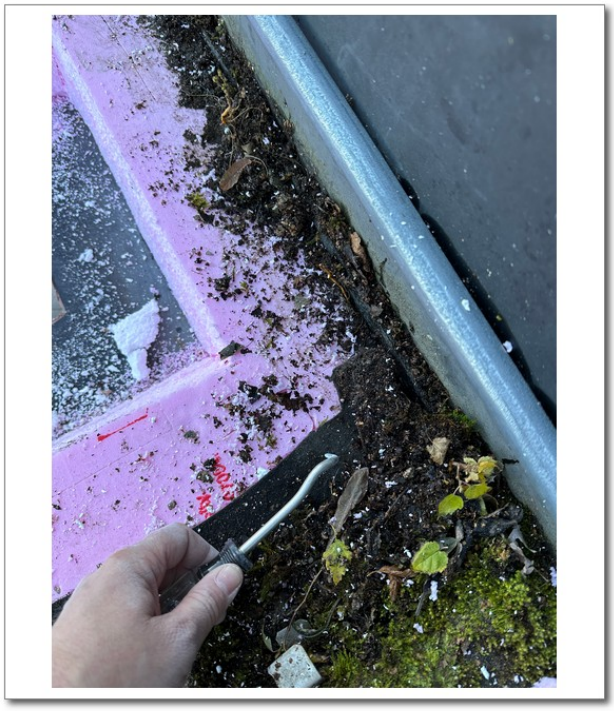
(Photo 9; 2023-10-03 10:42)



(Photo 10; 2023-10-03 10:46)



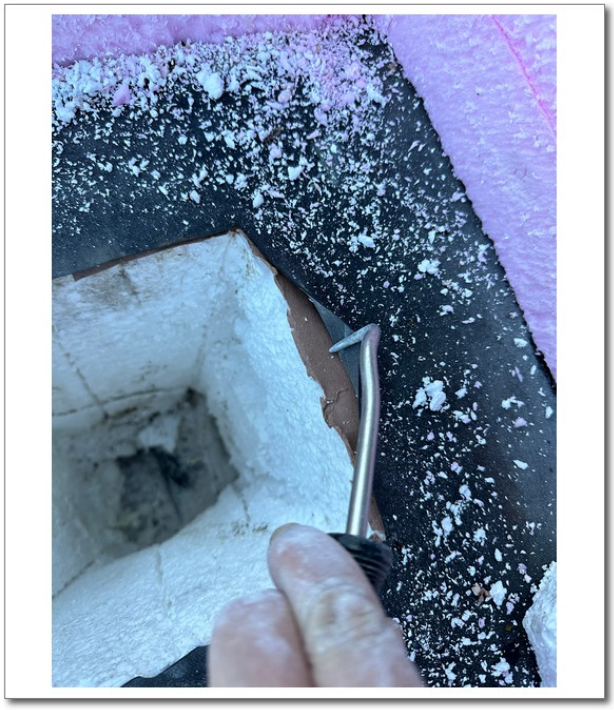
(Photo 11; 2023-10-03 11:04)



(Photo 12; 2023-10-03 11:04)



(Photo 13; 2023-10-03 11:04)



(Photo 14; 2023-10-03 11:04)



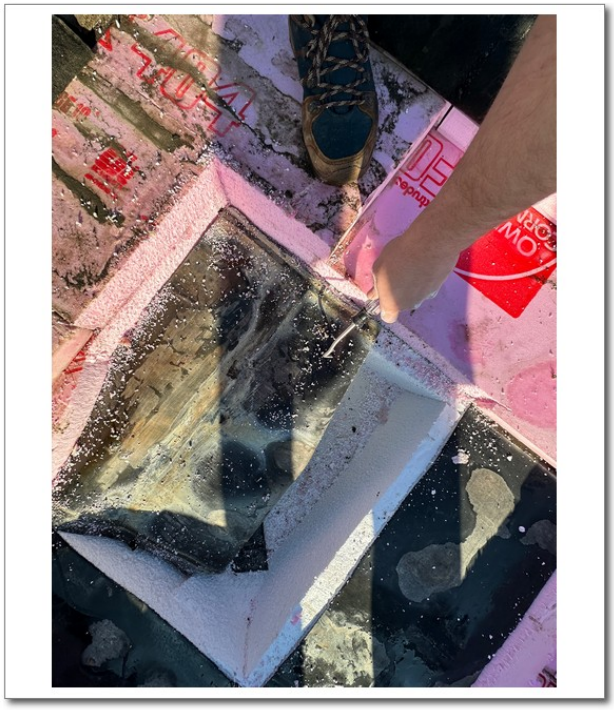
(Photo 15; 2023-10-03 11:04)



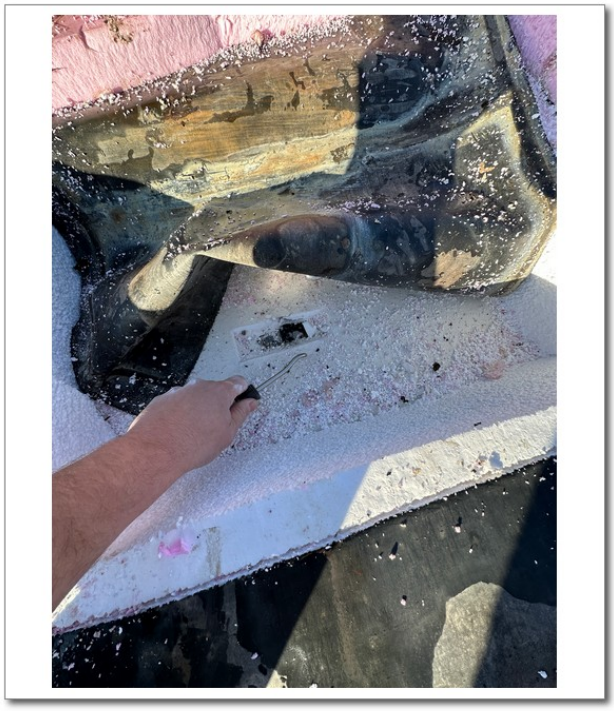
(Photo 18; 2023-10-03 11:14)



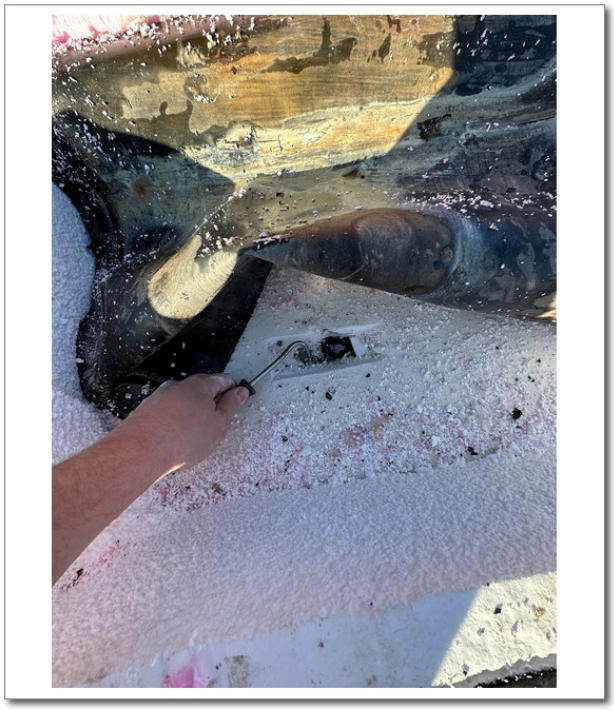
(Photo 19; 2023-10-03 11:15)



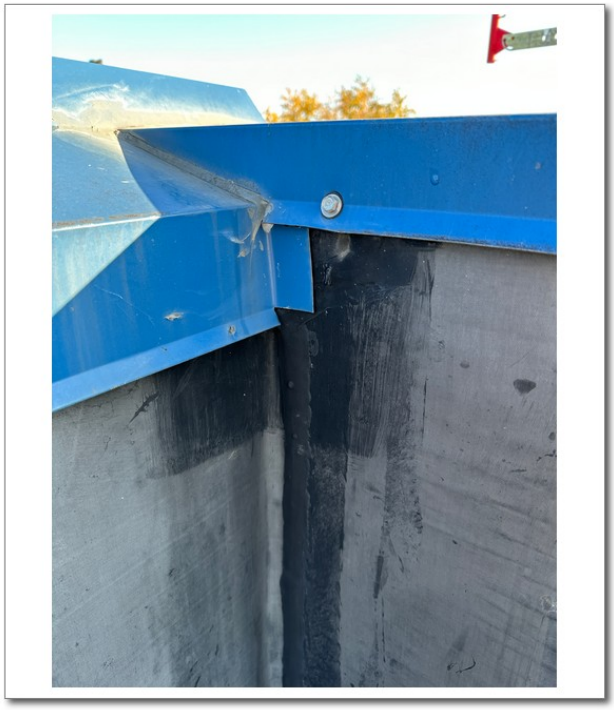
(Photo 20; 2023-10-03 11:15)



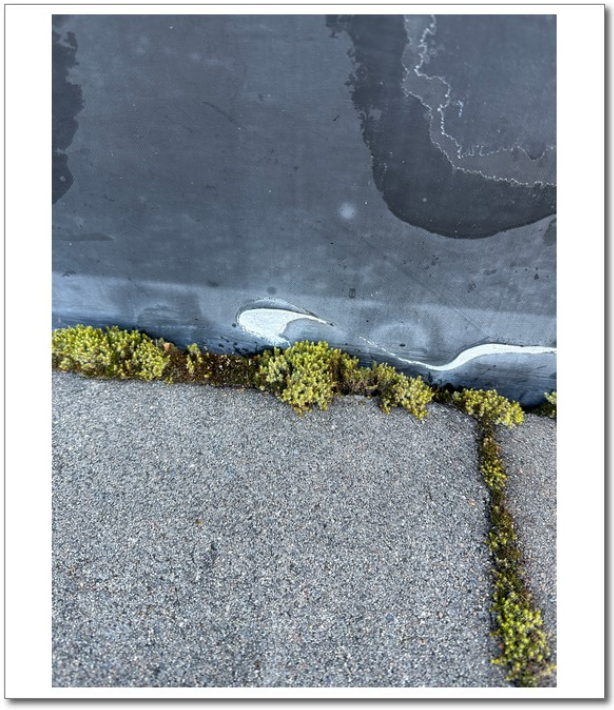
(Photo 21; 2023-10-03 11:15)



(Photo 22; 2023-10-03 11:15)



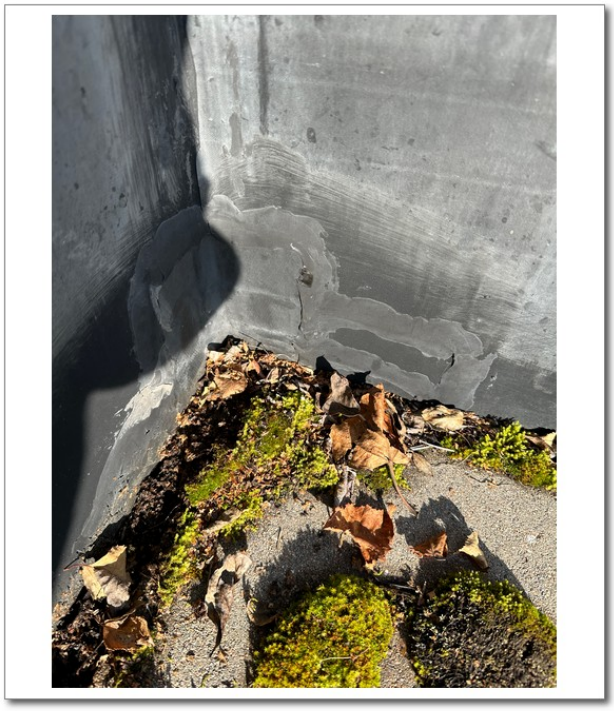
(Photo 23; 2023-10-03 11:27)



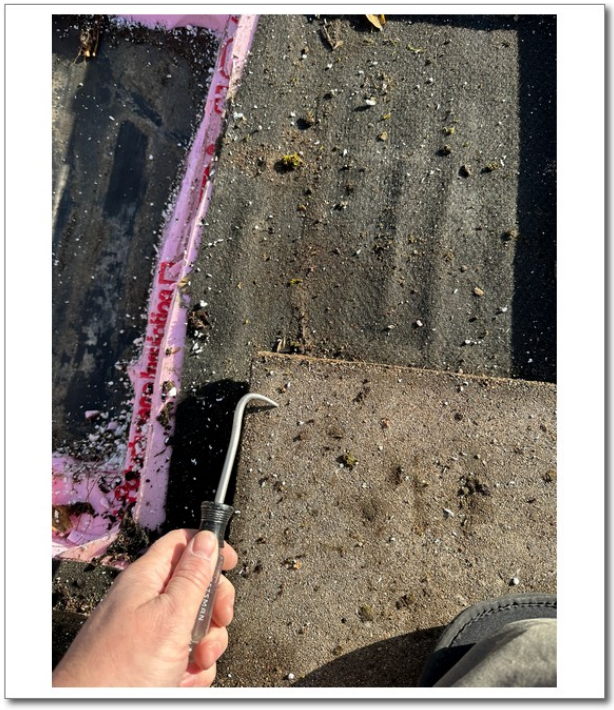
(Photo 24; 2023-10-03 11:28)



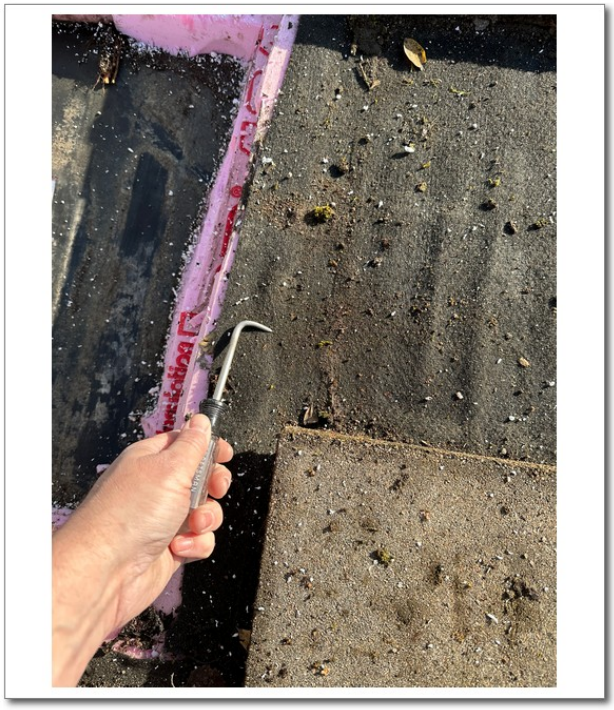
(Photo 25; 2023-10-03 11:30)



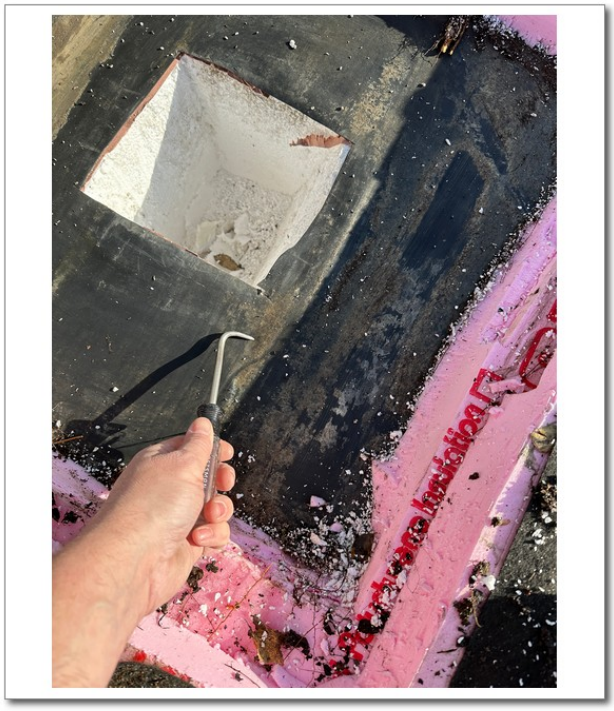
(Photo 26; 2023-10-03 11:34)



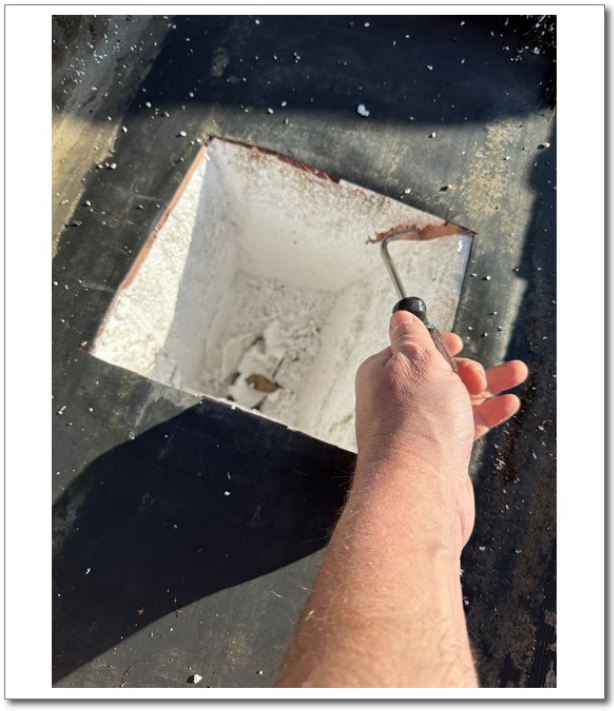
(Photo 27; 2023-10-03 11:42)



(Photo 28; 2023-10-03 11:42)



(Photo 29; 2023-10-03 11:42)



(Photo 30; 2023-10-03 11:42)



(Photo 31; 2023-10-03 11:43)



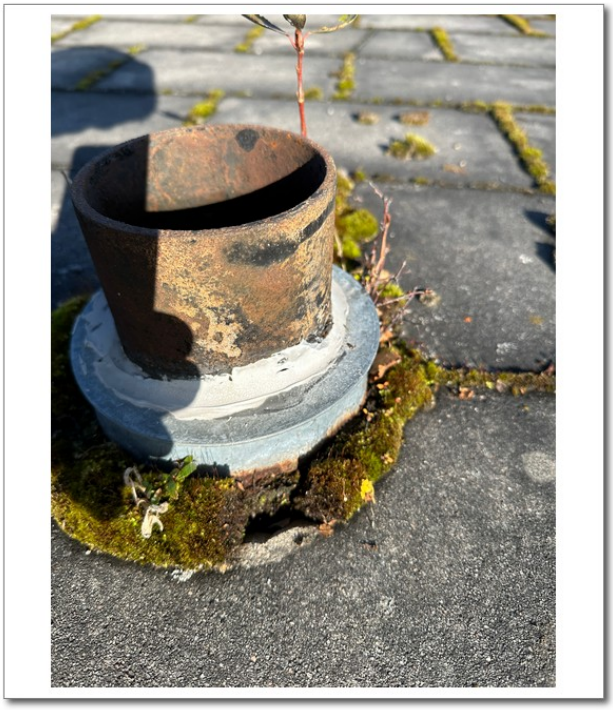
(Photo 32; 2023-10-03 11:59)



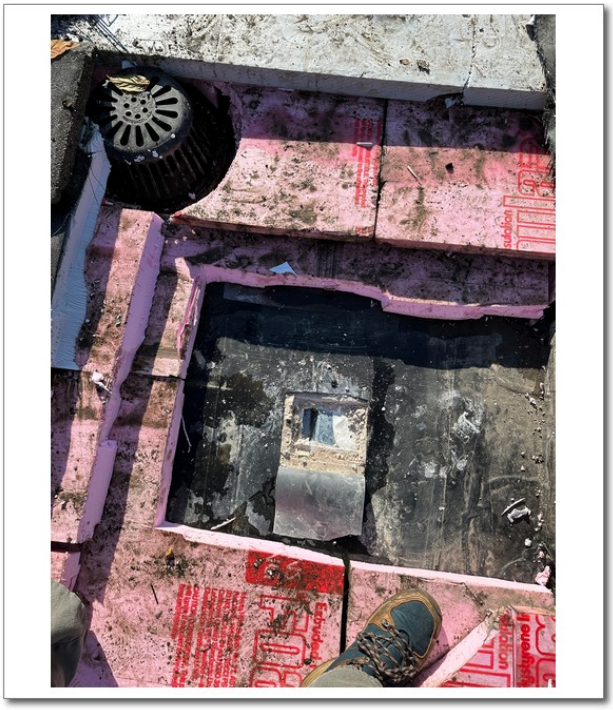
(Photo 33; 2023-10-03 12:07)



(Photo 34; 2023-10-03 12:11)



(Photo 35; 2023-10-03 12:12)



(Photo 36; 2023-10-03 12:23)



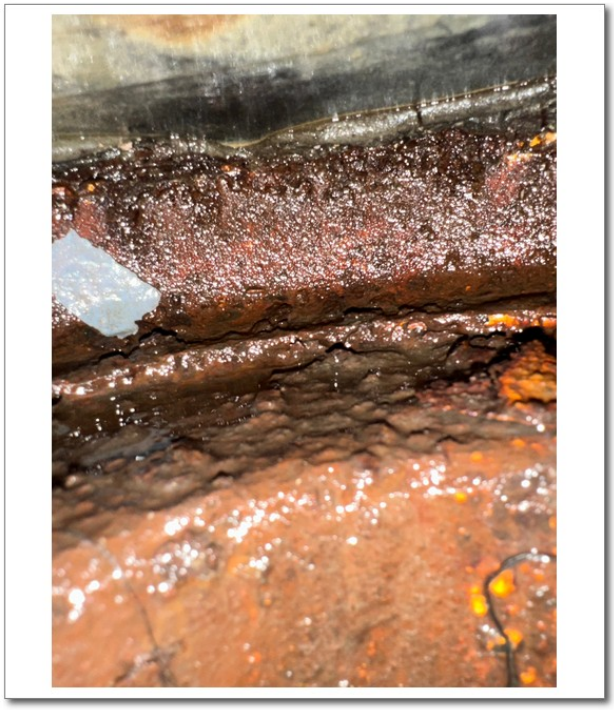
(Photo 37; 2023-10-03 12:23)



(Photo 38; 2023-10-03 12:23)



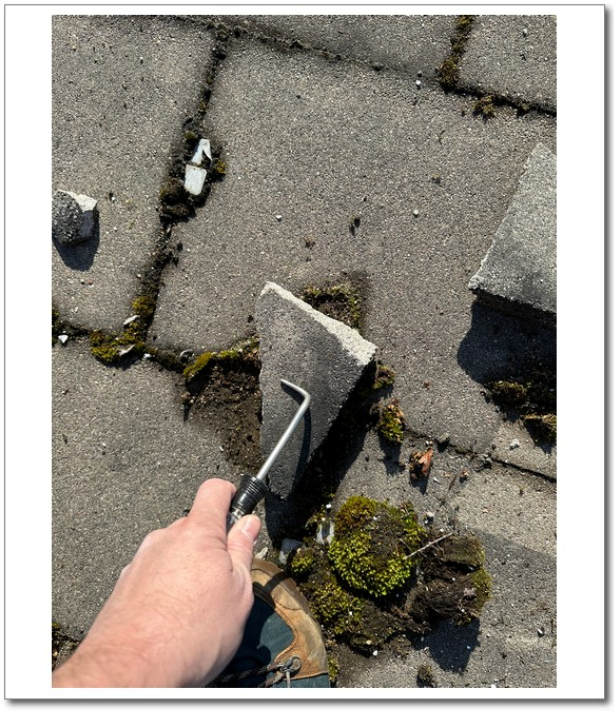
(Photo 39; 2023-10-03 12:23)



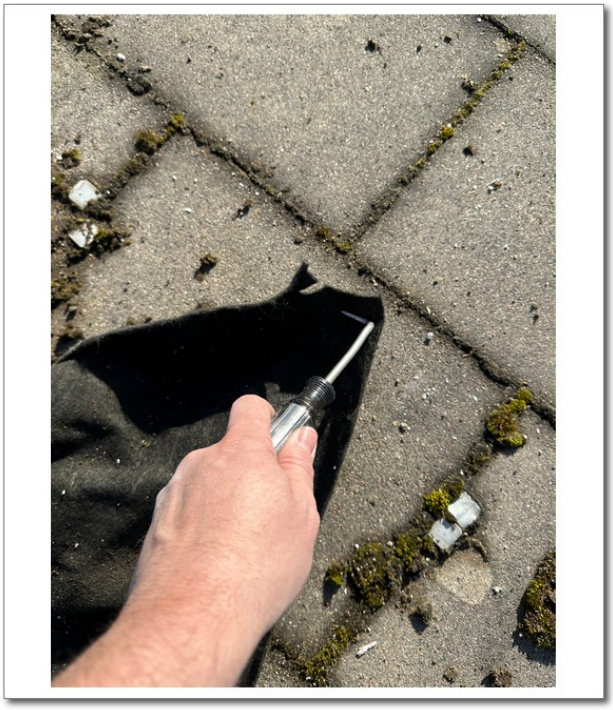
(Photo 41; 2023-10-03 12:25)



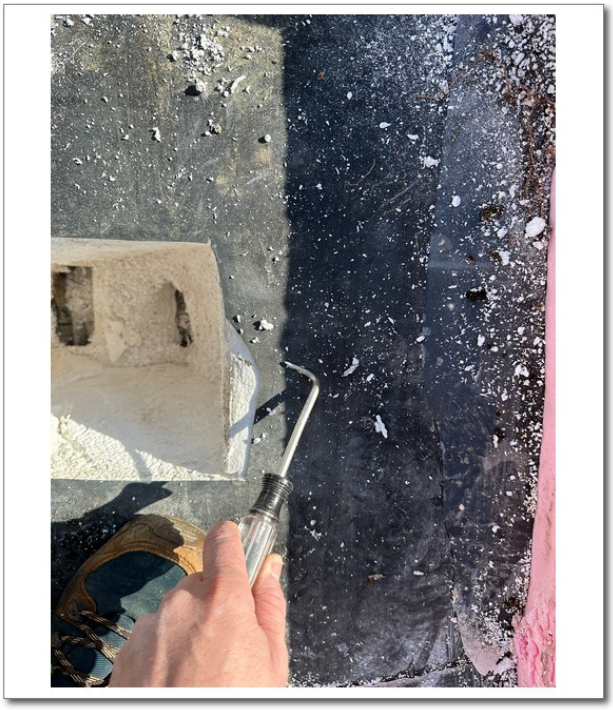
(Photo 44; 2023-10-03 12:40)



(Photo 46; 2023-10-03 12:53)



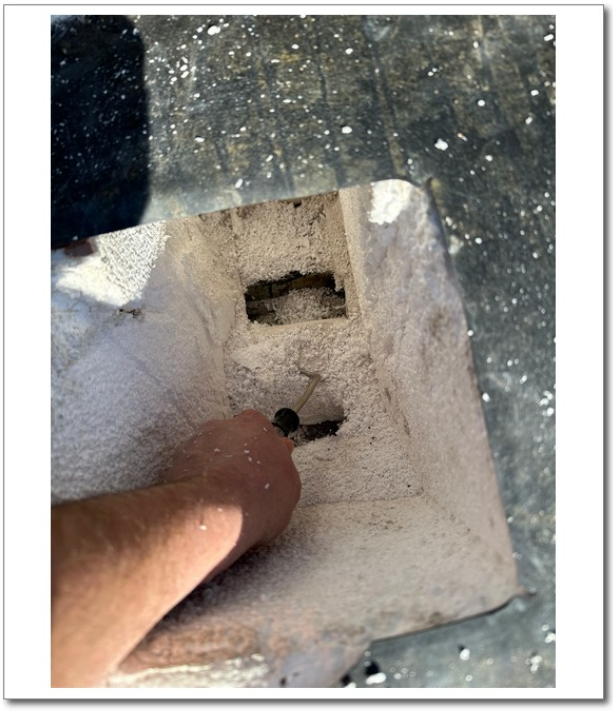
(Photo 47; 2023-10-03 12:53)



(Photo 48; 2023-10-03 12:53)



(Photo 49; 2023-10-03 12:53)



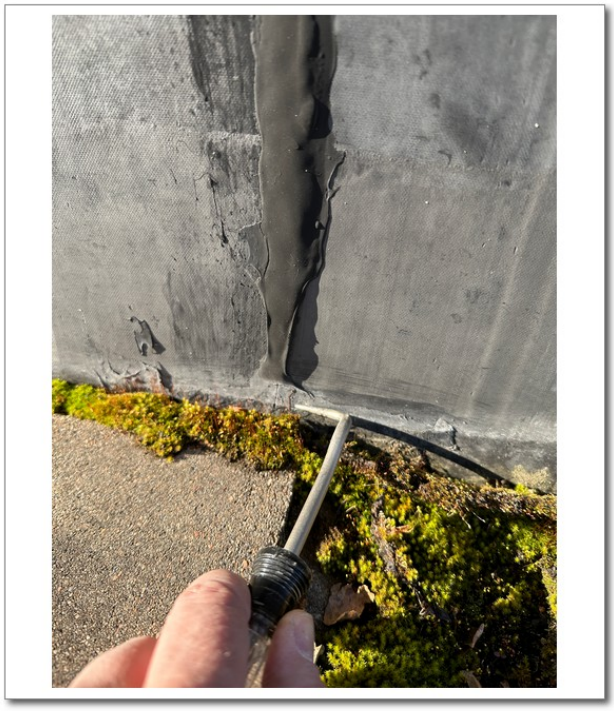
(Photo 50; 2023-10-03 12:53)



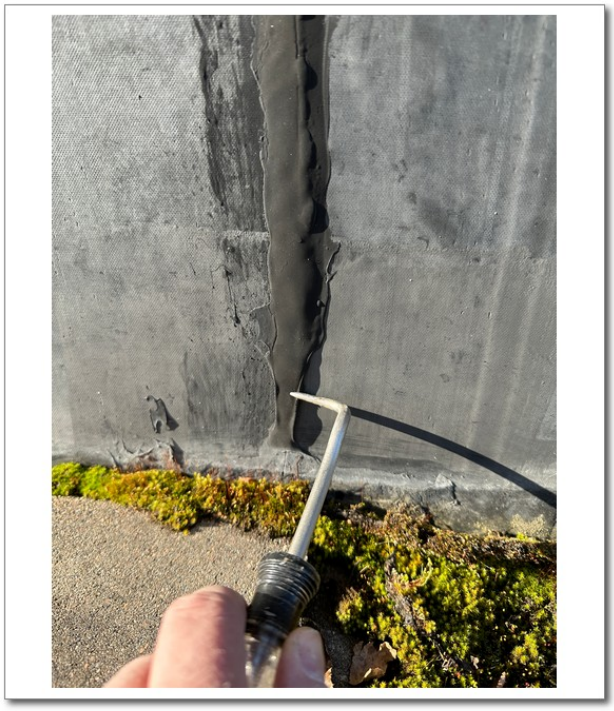
(Photo 52; 2023-10-03 12:55)



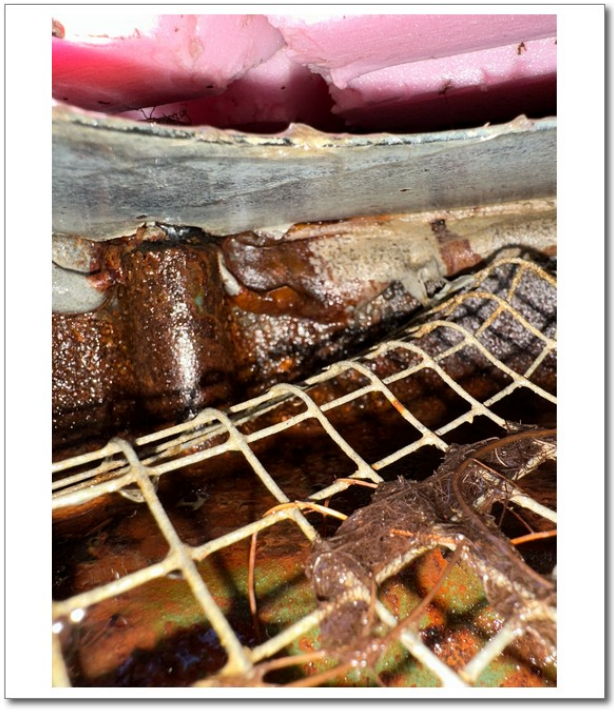
(Photo 53; 2023-10-03 12:55)



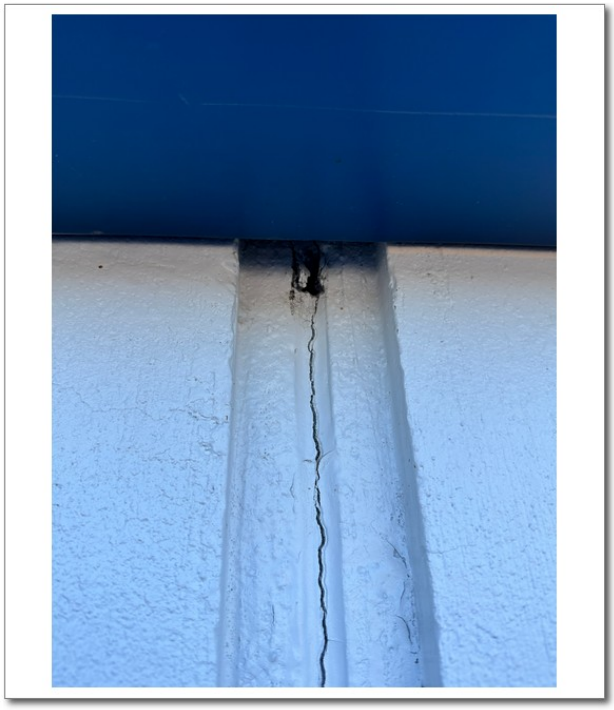
(Photo 56; 2023-10-03 12:59)



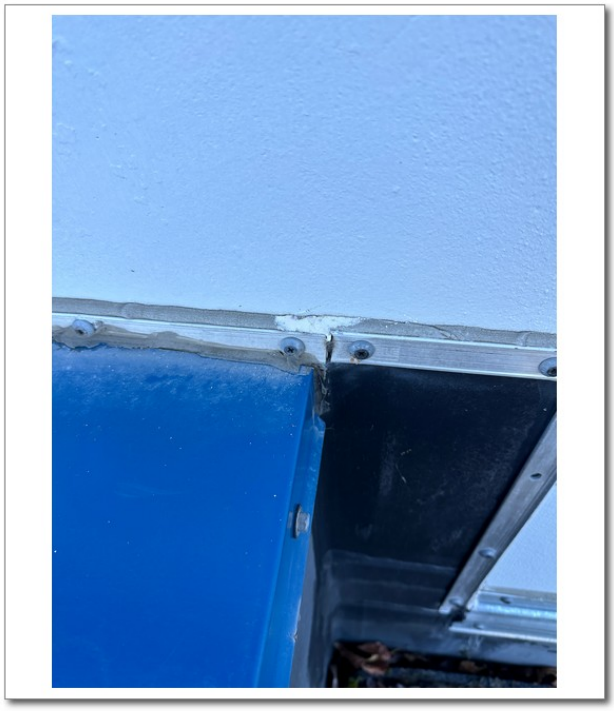
(Photo 57; 2023-10-03 12:59)



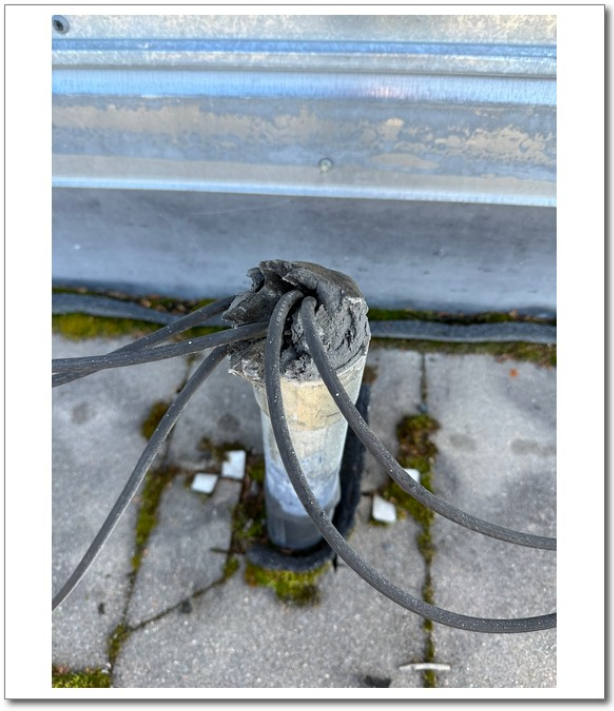
(Photo 59; 2023-10-03 13:02)



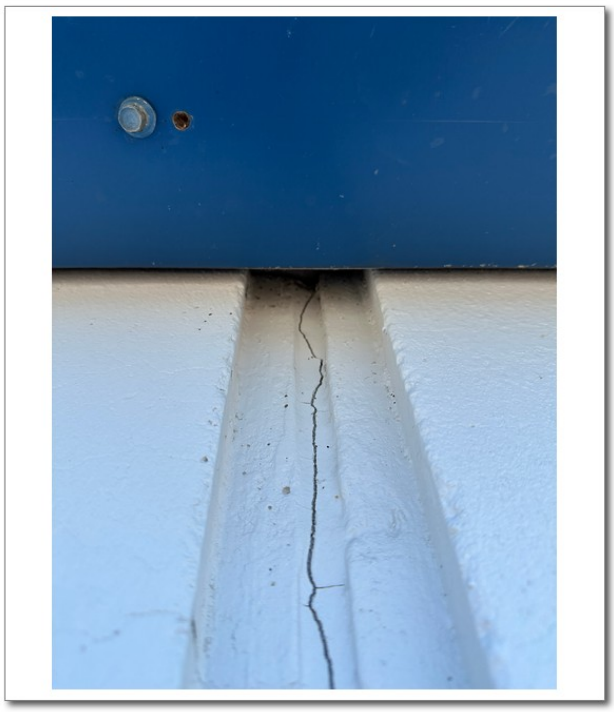
(Photo 60; 2023-10-03 13:28)



(Photo 61; 2023-10-03 13:34)



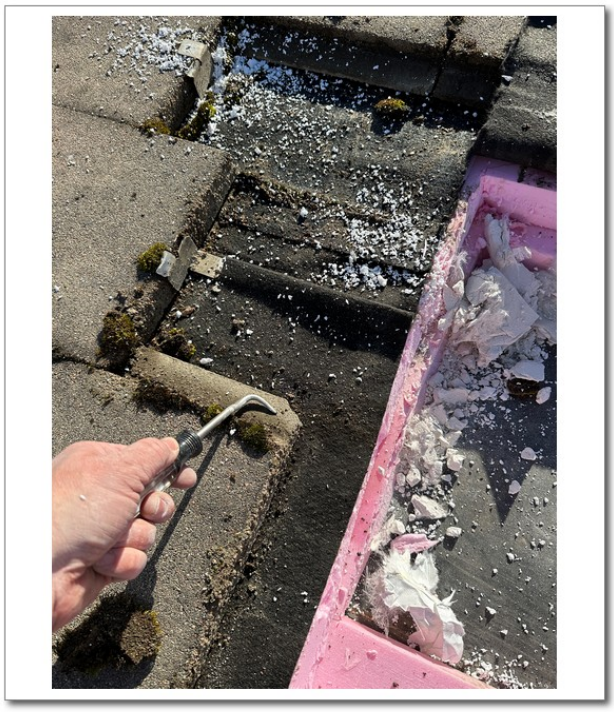
(Photo 62; 2023-10-03 13:35)



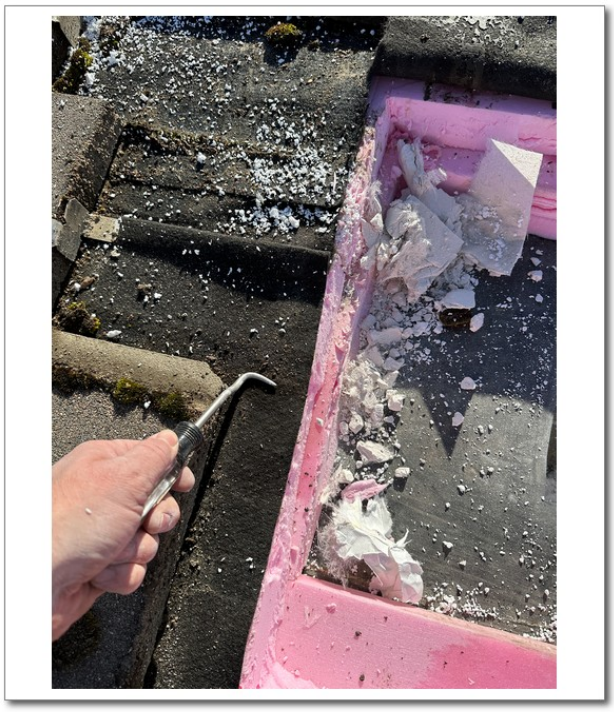
(Photo 63; 2023-10-03 13:36)



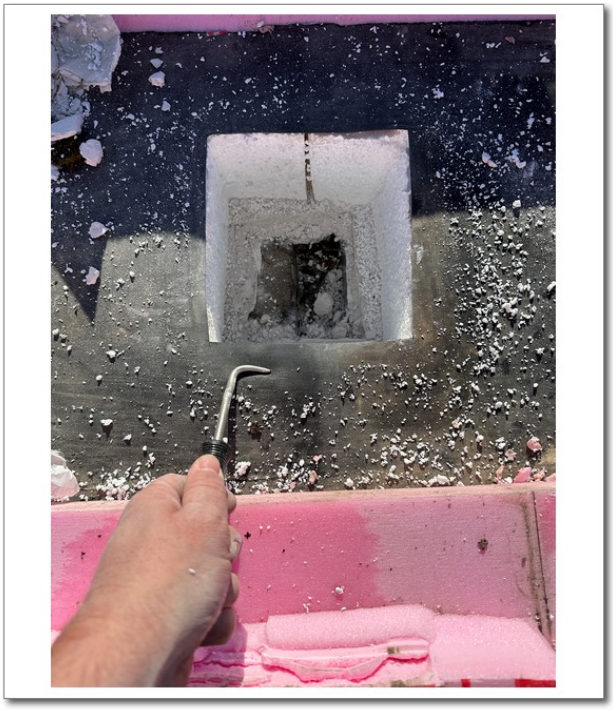
(Photo 64; 2023-10-03 13:39)



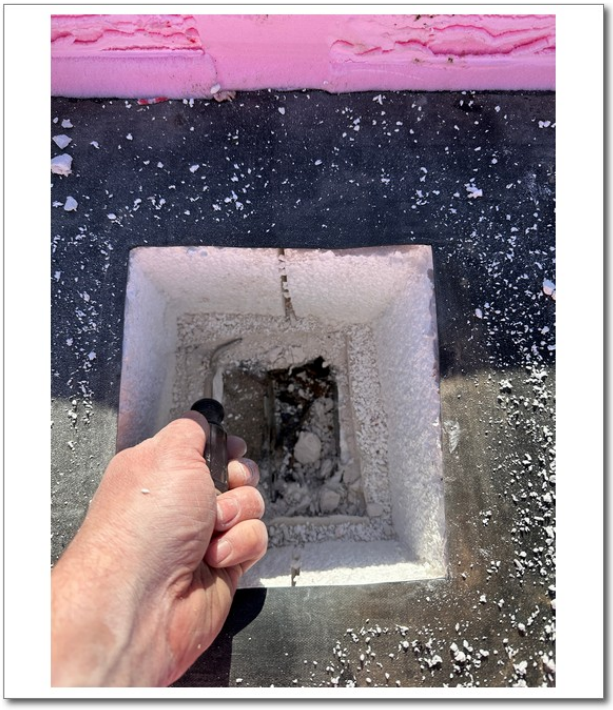
(Photo 67; 2023-10-03 13:56)



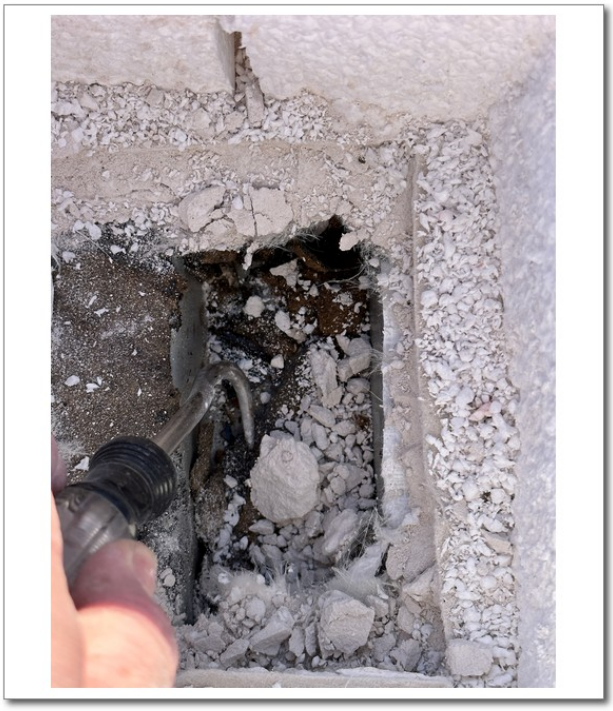
(Photo 68; 2023-10-03 13:56)



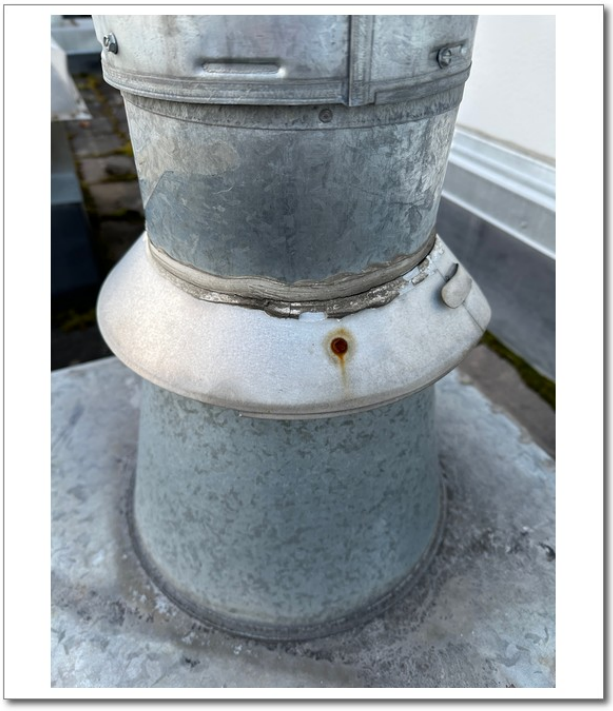
(Photo 69; 2023-10-03 13:56)



(Photo 70; 2023-10-03 13:56)



(Photo 71; 2023-10-03 13:56)



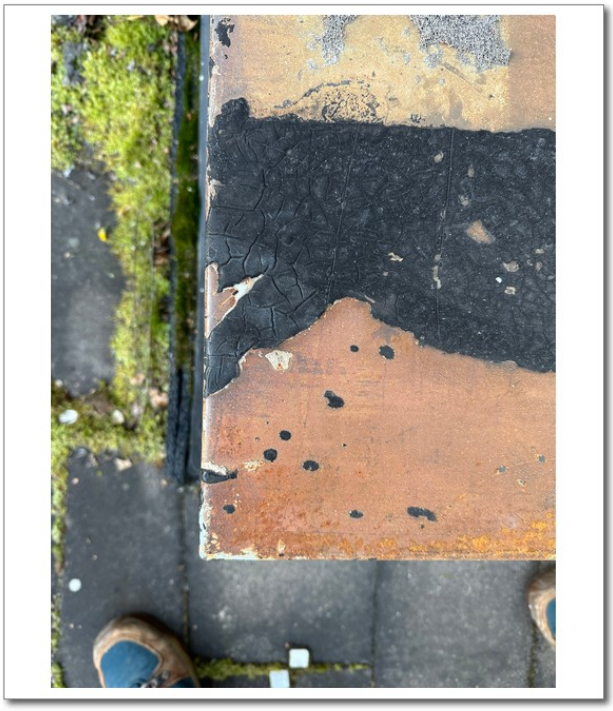
(Photo 73; 2023-10-04 08:53)



(Photo 74; 2023-10-04 08:54)



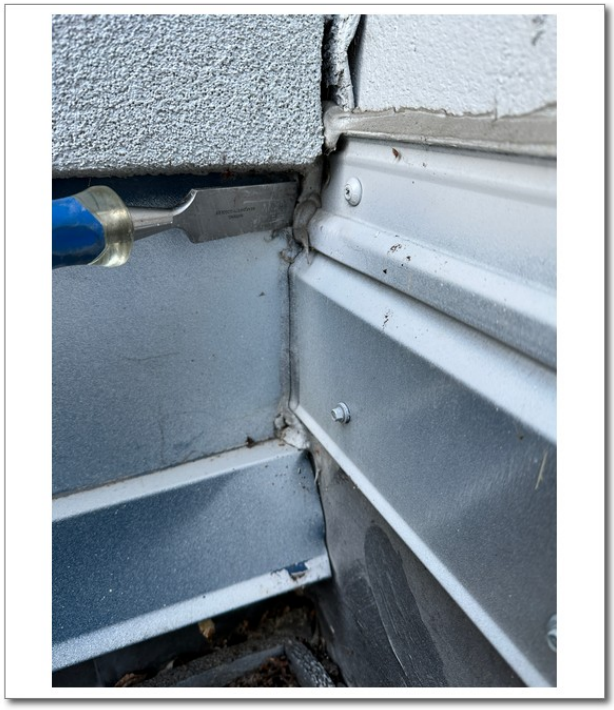
(Photo 75; 2023-10-04 08:54)



(Photo 76; 2023-10-04 08:56)



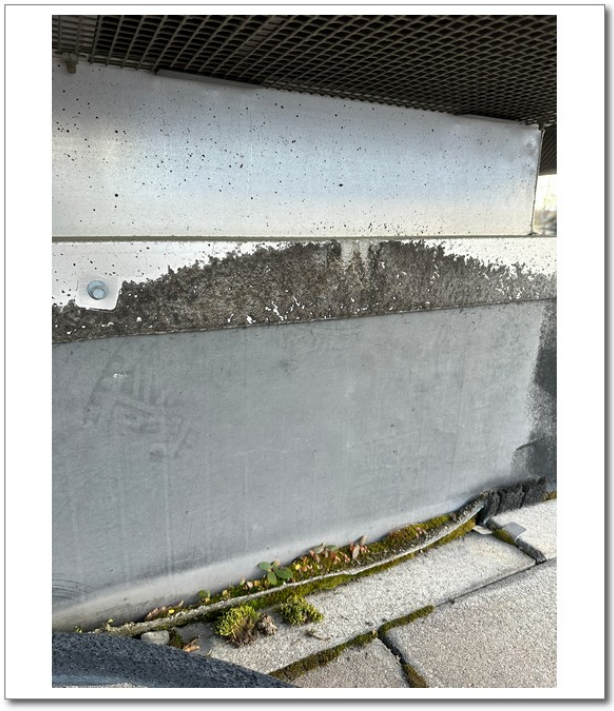
(Photo 77; 2023-10-04 08:57)



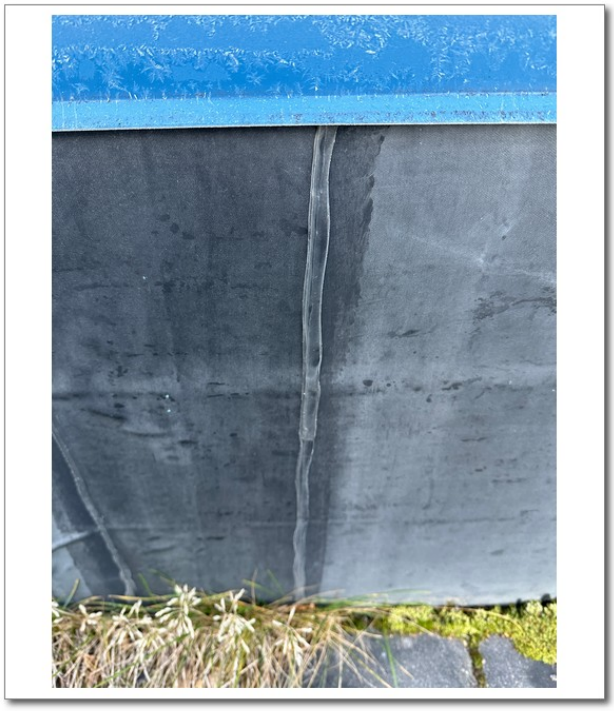
(Photo 78; 2023-10-04 08:57)



(Photo 79; 2023-10-04 09:00)



(Photo 80; 2023-10-04 09:02)



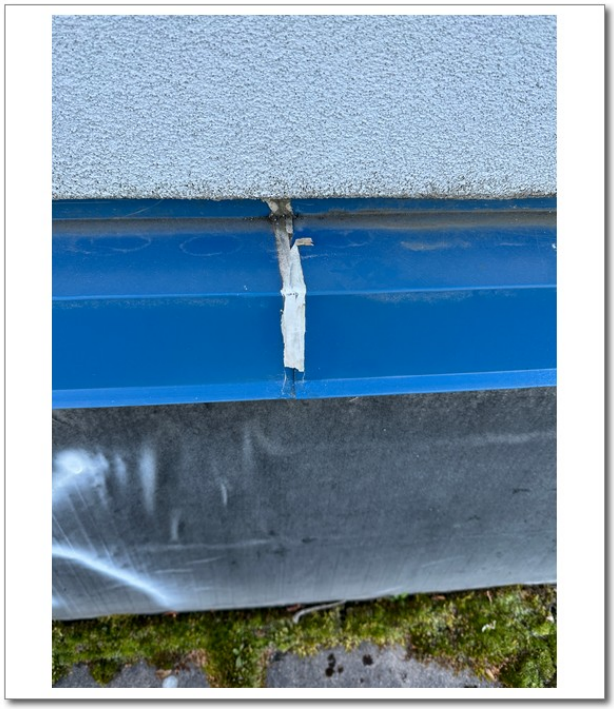
(Photo 82; 2023-10-04 09:04)



(Photo 83; 2023-10-04 09:05)



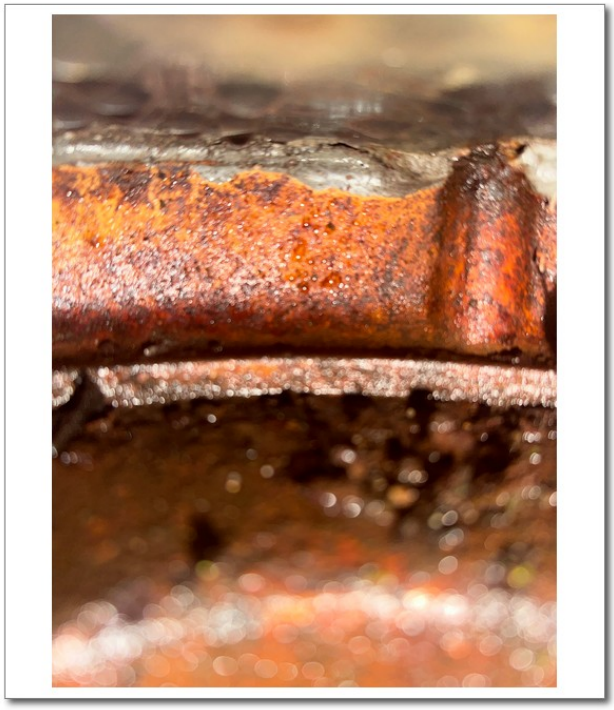
(Photo 84; 2023-10-04 09:06)



(Photo 85; 2023-10-04 09:08)



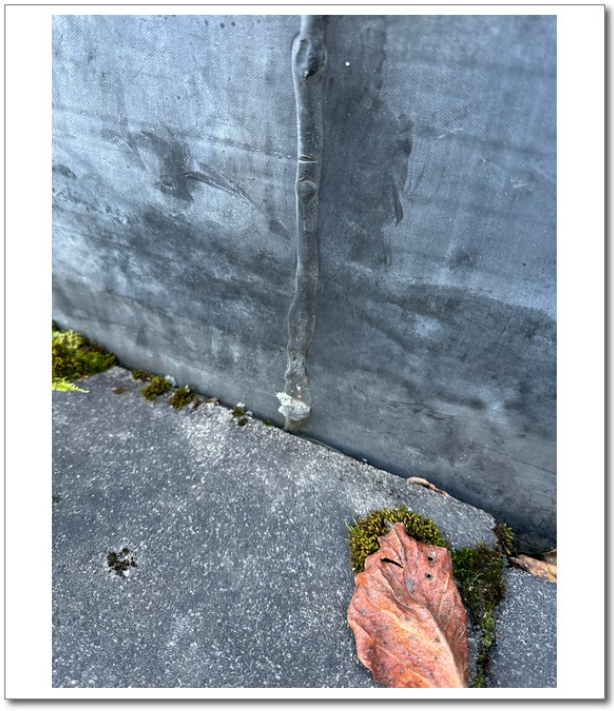
(Photo 86; 2023-10-04 09:09)



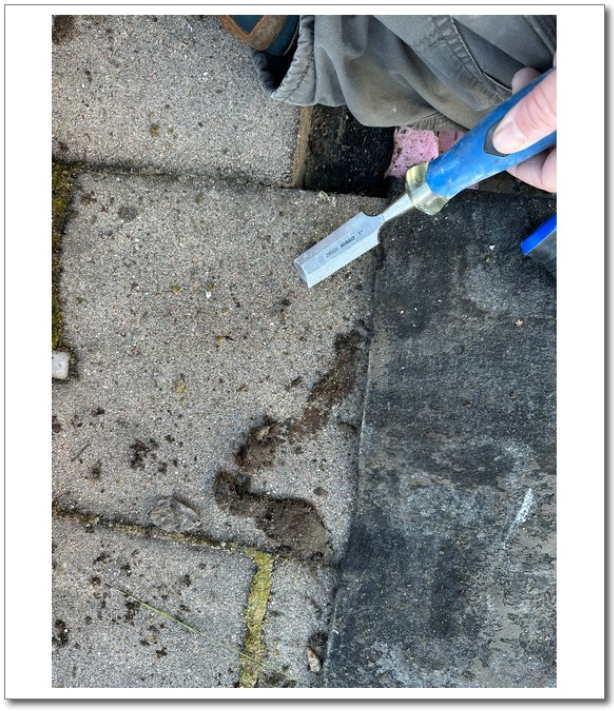
(Photo 88; 2023-10-04 09:10)



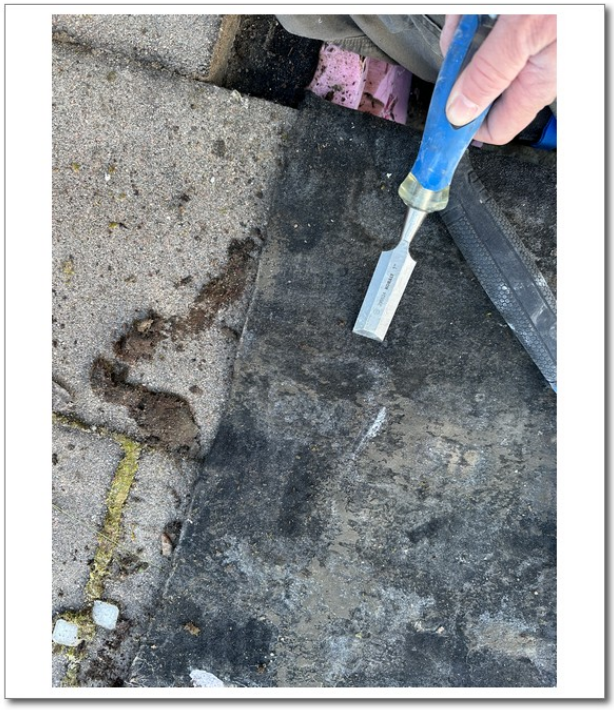
(Photo 89; 2023-10-04 09:11)



(Photo 90; 2023-10-04 09:13)



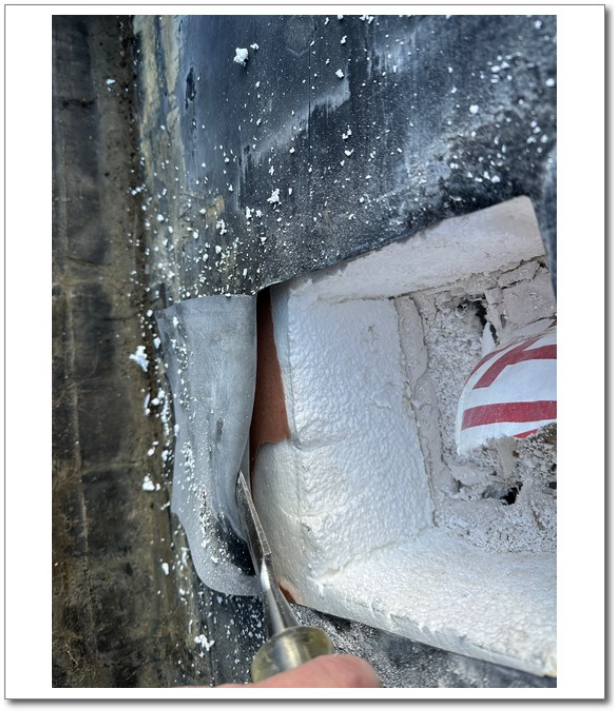
(Photo 93; 2023-10-04 09:32)



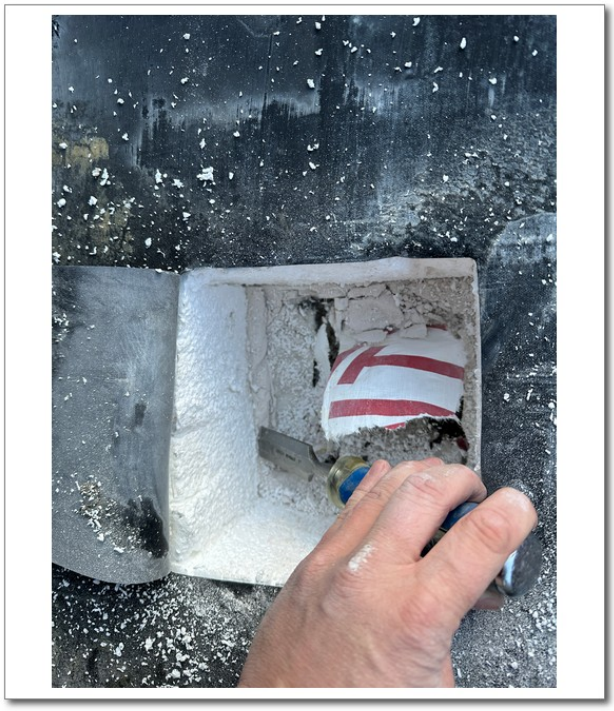
(Photo 94; 2023-10-04 09:32)



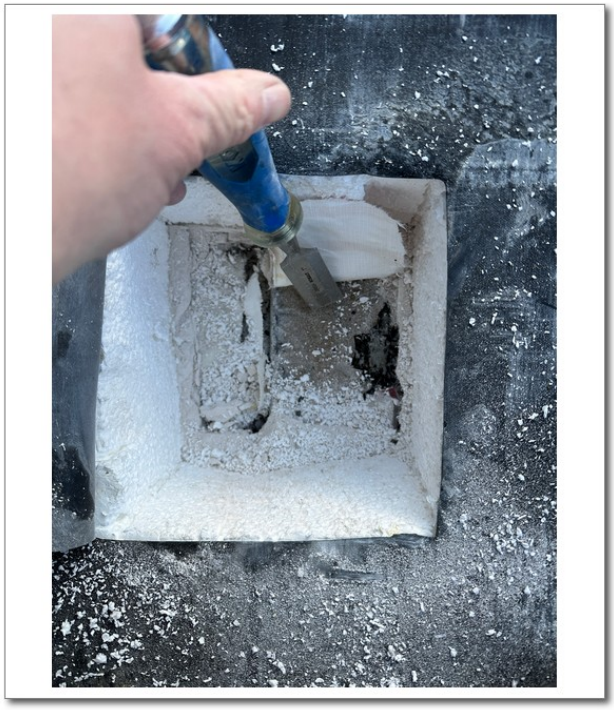
(Photo 95; 2023-10-04 09:32)



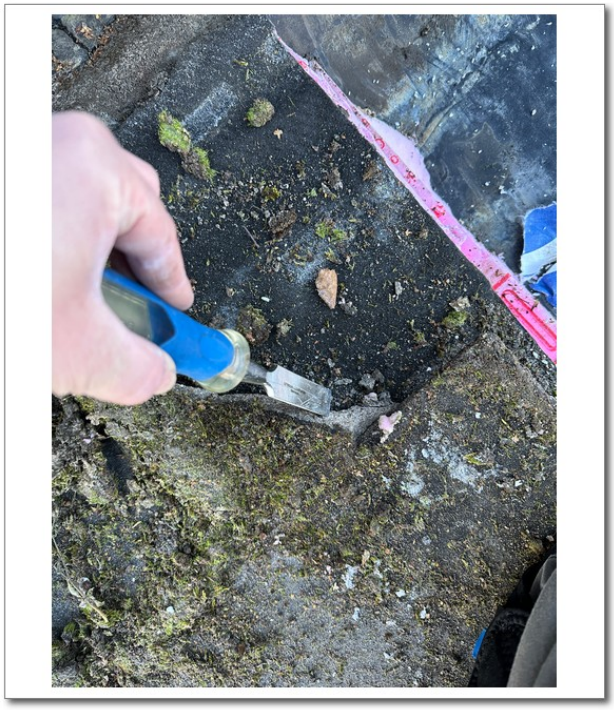
(Photo 96; 2023-10-04 09:32)



(Photo 97; 2023-10-04 09:32)



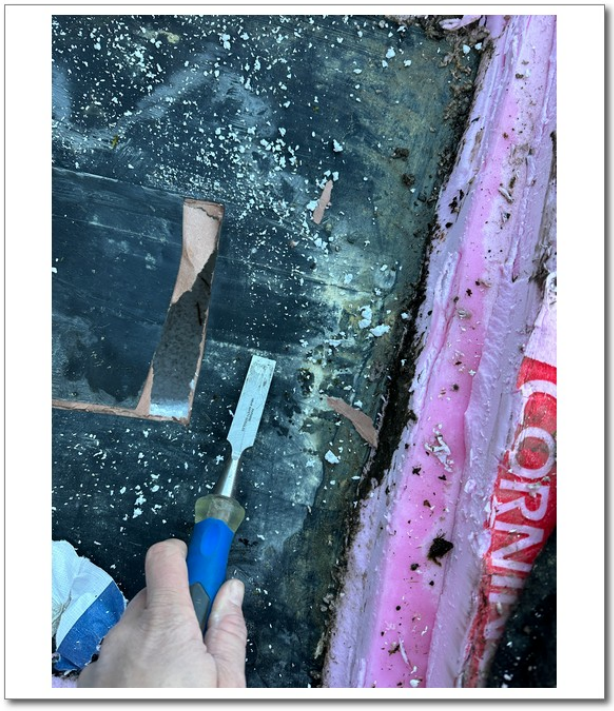
(Photo 98; 2023-10-04 09:32)



(Photo 100; 2023-10-04 09:56)



(Photo 101; 2023-10-04 09:56)



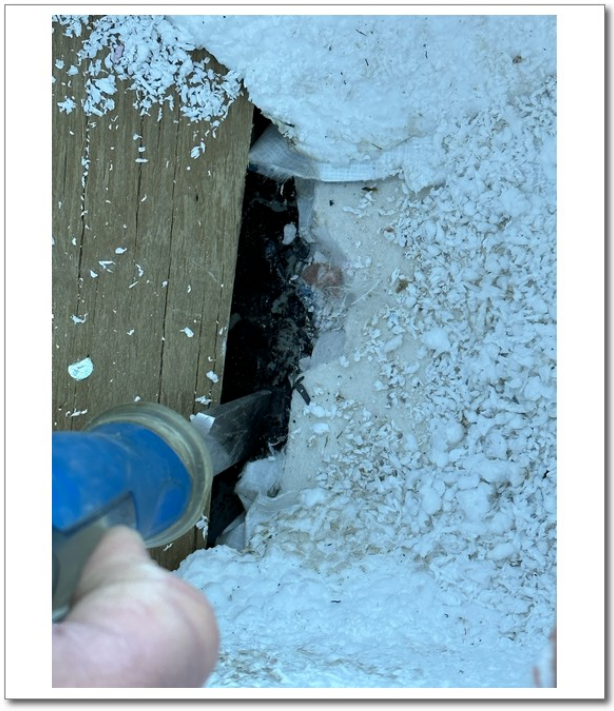
(Photo 102; 2023-10-04 09:56)



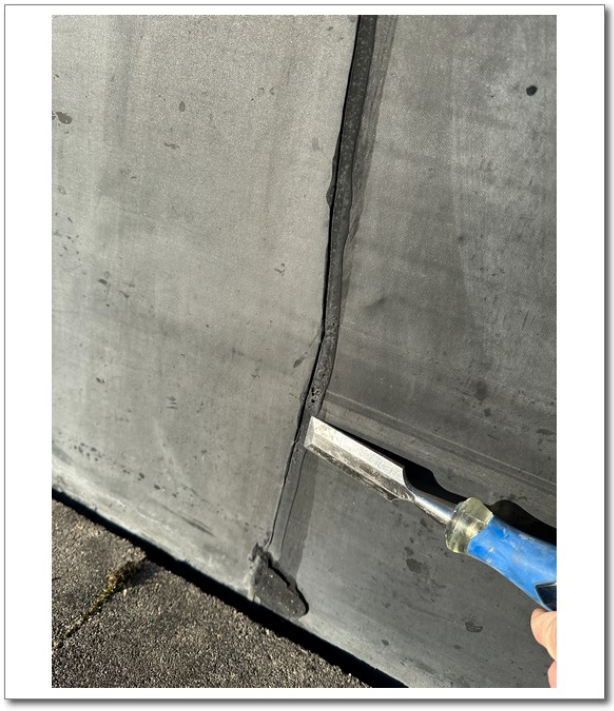
(Photo 103; 2023-10-04 09:56)



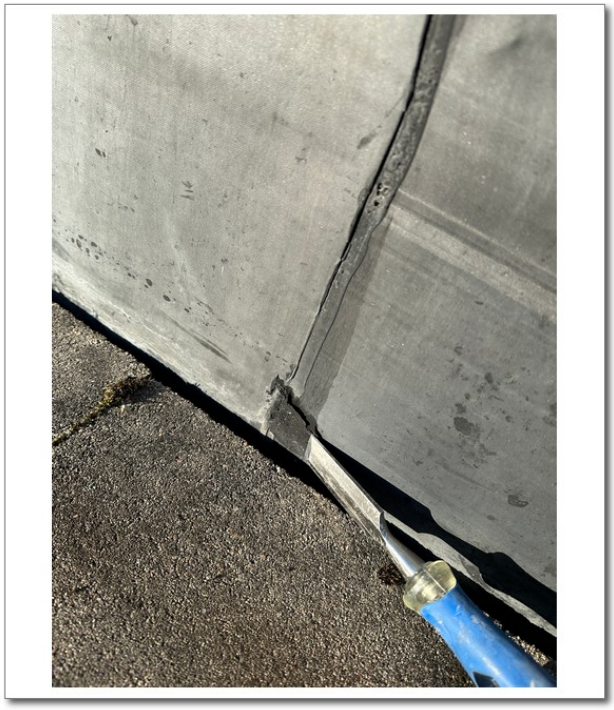
(Photo 104; 2023-10-04 09:56)



(Photo 105; 2023-10-04 09:56)



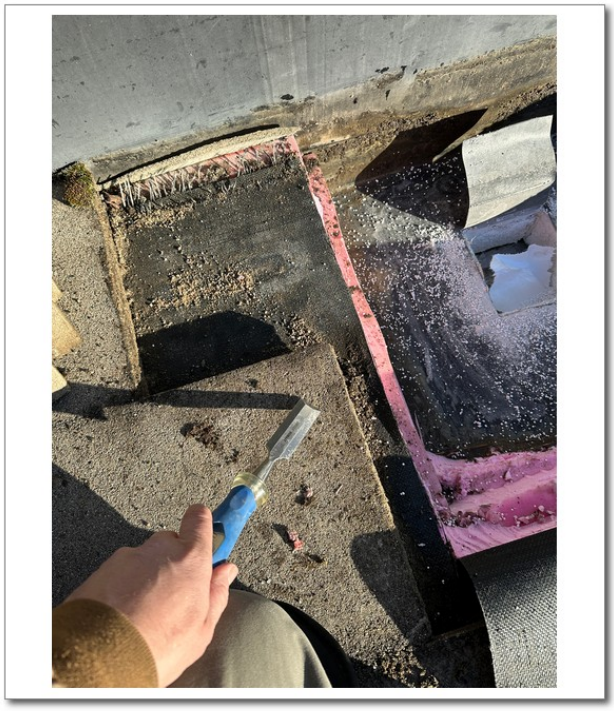
(Photo 106; 2023-10-04 10:35)



(Photo 107; 2023-10-04 10:35)



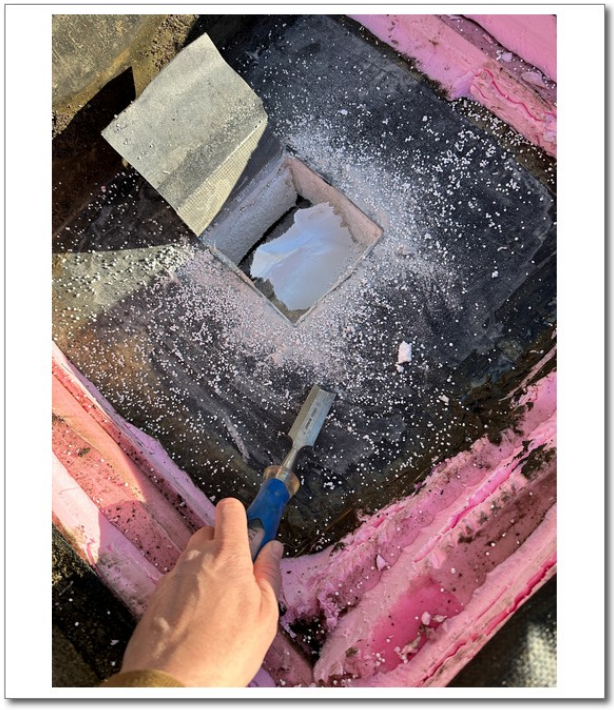
(Photo 108; 2023-10-04 10:47)



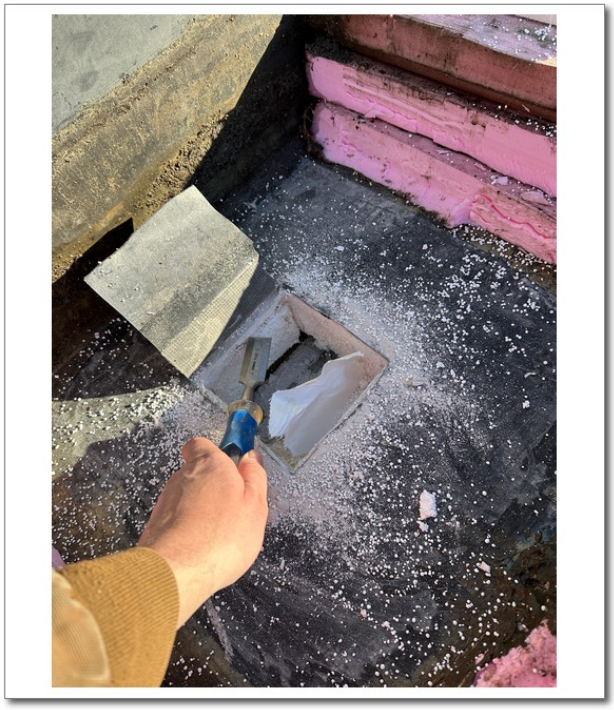
(Photo 110; 2023-10-04 10:48)



(Photo 111; 2023-10-04 10:48)



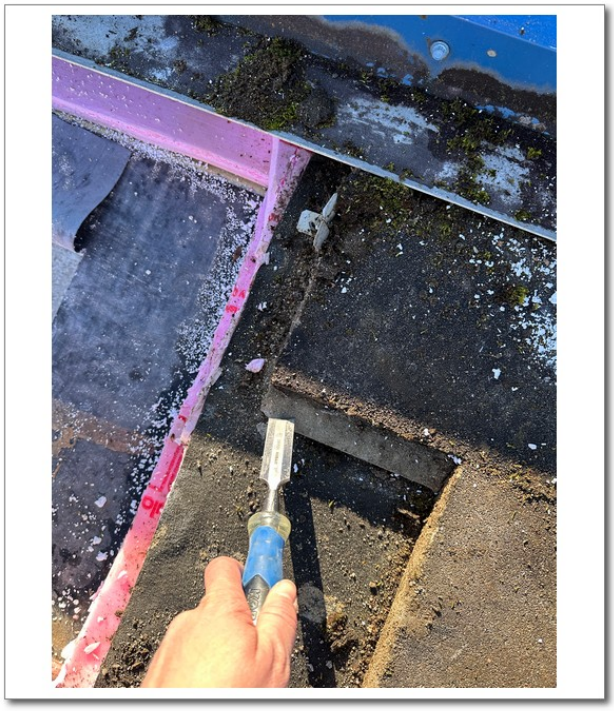
(Photo 112; 2023-10-04 10:48)



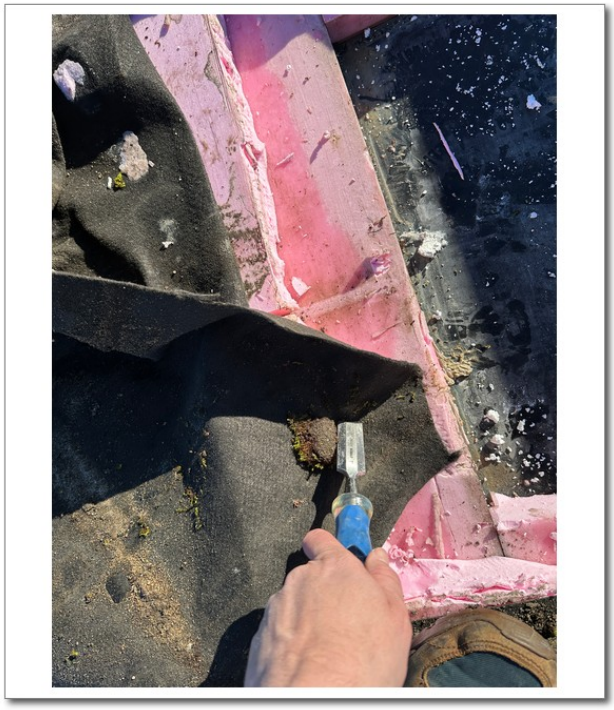
(Photo 113; 2023-10-04 10:48)



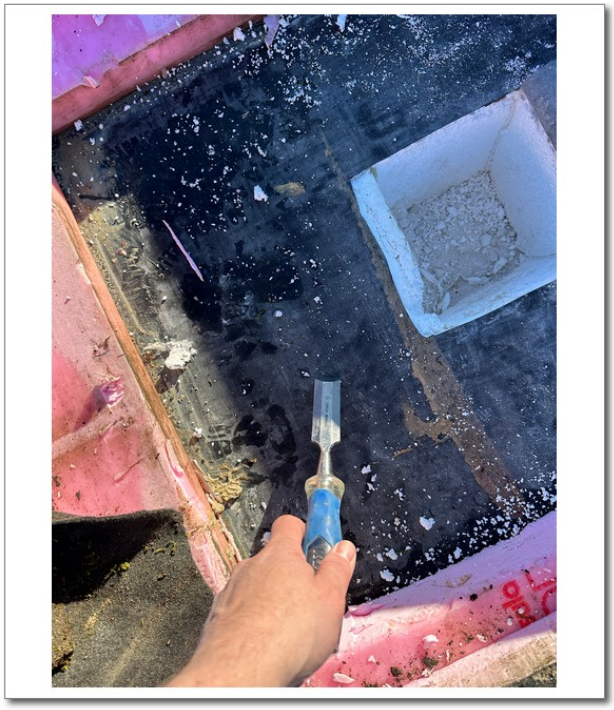
(Photo 114; 2023-10-04 11:40)



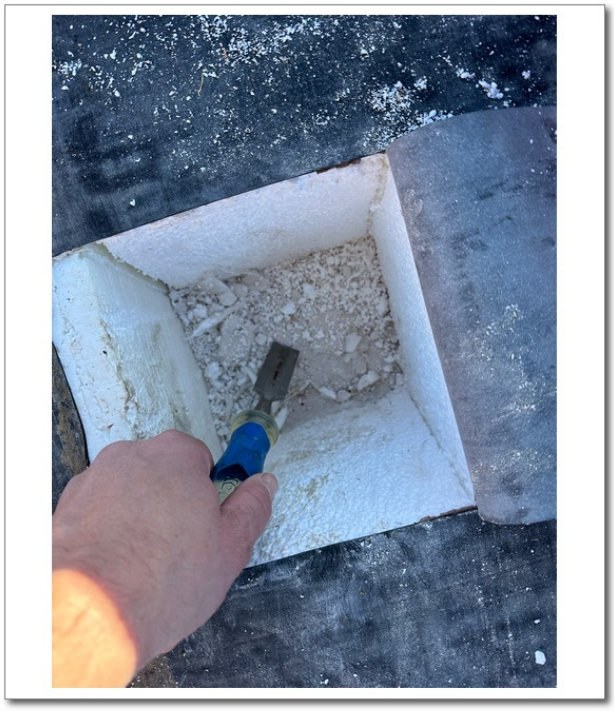
(Photo 115; 2023-10-04 11:40)



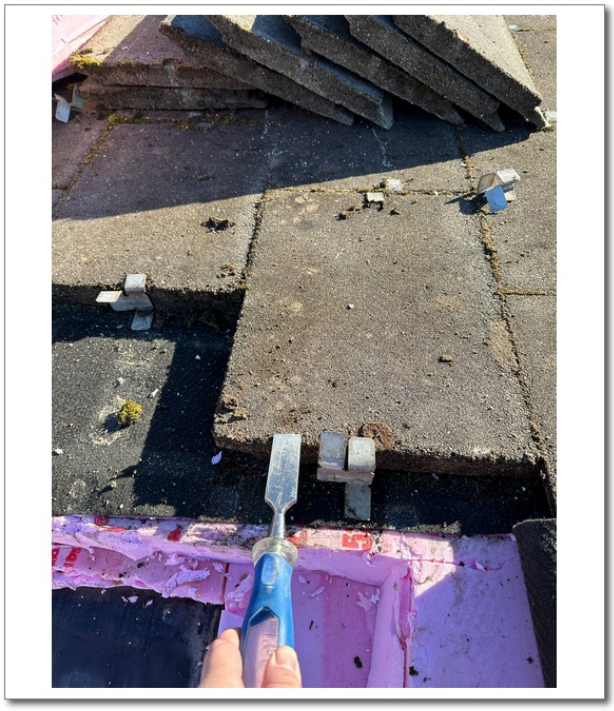
(Photo 116; 2023-10-04 11:40)



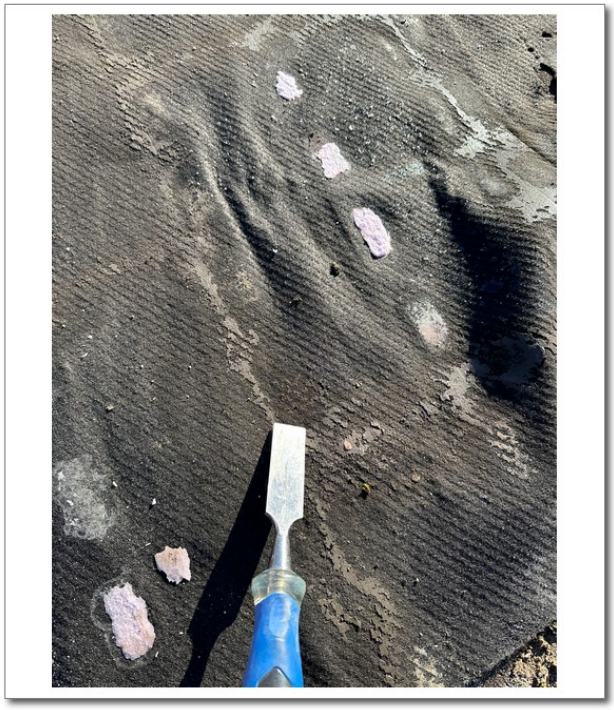
(Photo 117; 2023-10-04 11:40)



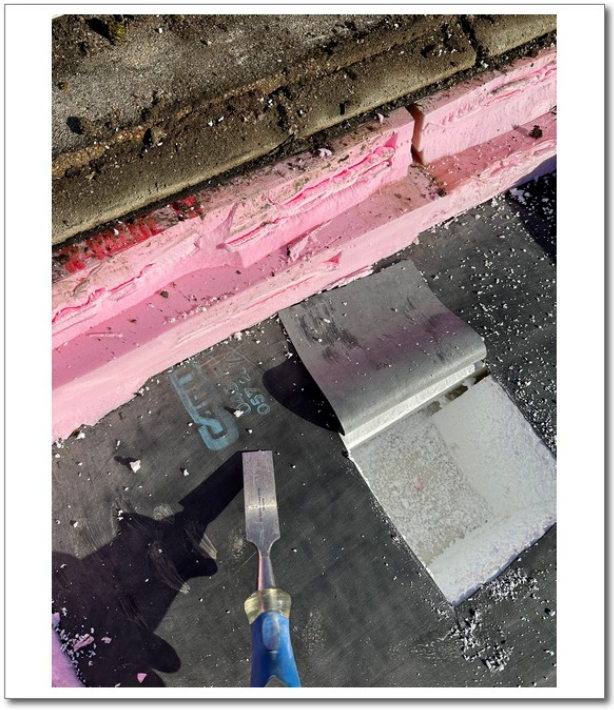
(Photo 118; 2023-10-04 11:40)



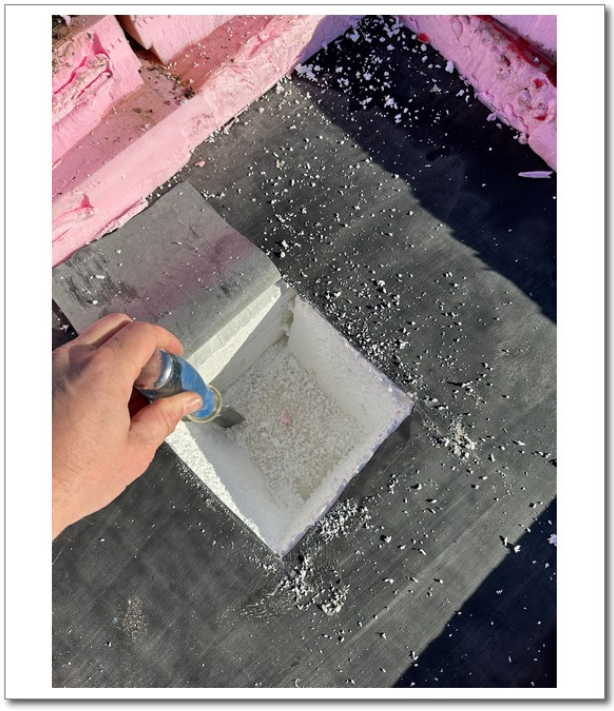
(Photo 120; 2023-10-04 11:43)



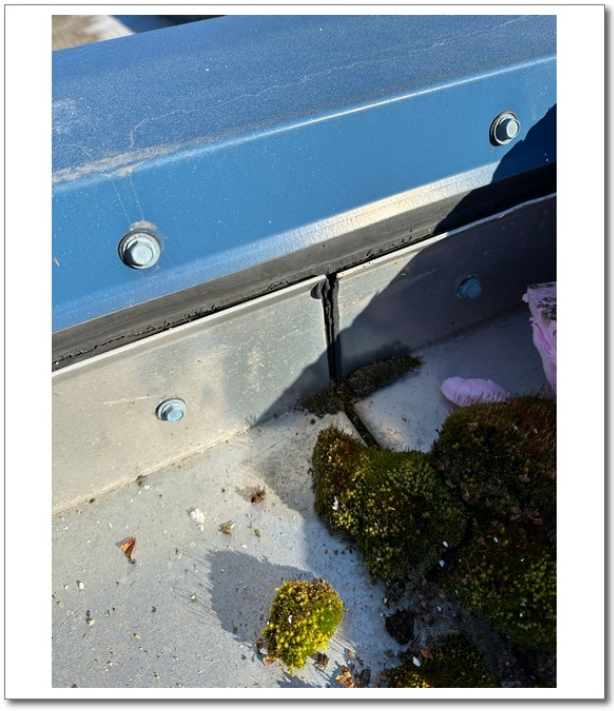
(Photo 121; 2023-10-04 11:43)



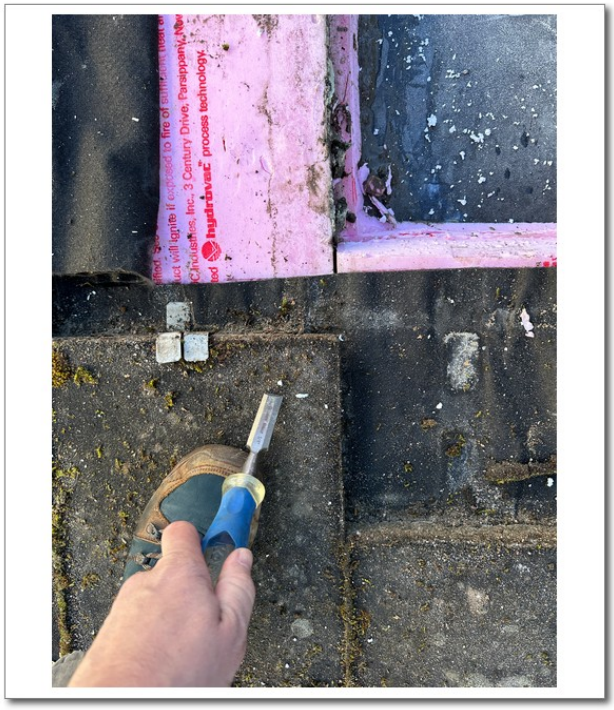
(Photo 122; 2023-10-04 11:43)



(Photo 123; 2023-10-04 11:43)



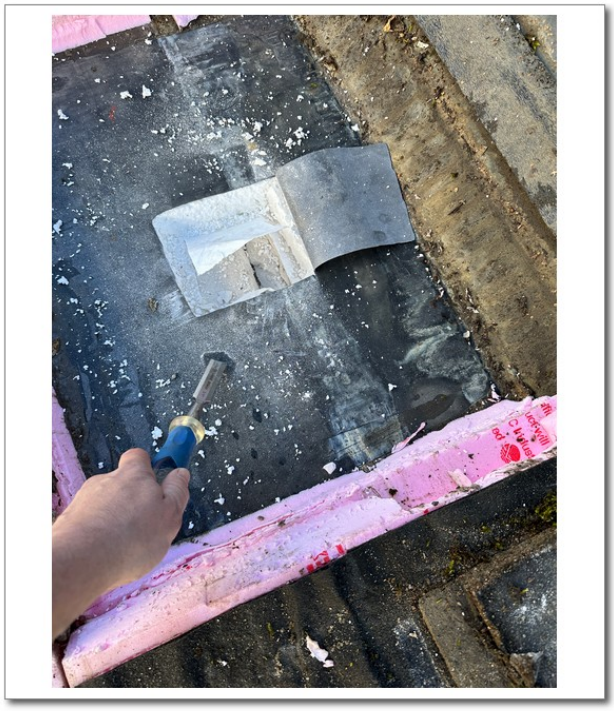
(Photo 124; 2023-10-04 11:47)



(Photo 127; 2023-10-04 11:56)



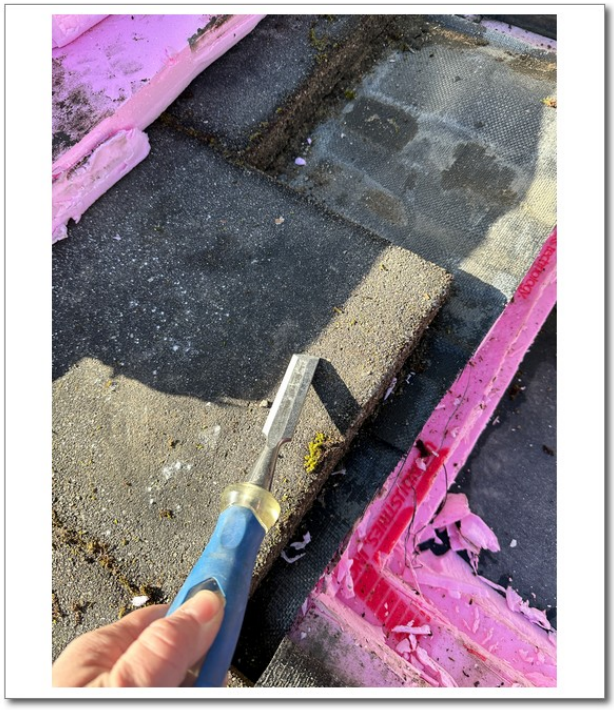
(Photo 128; 2023-10-04 11:56)



(Photo 129; 2023-10-04 11:56)



(Photo 130; 2023-10-04 11:56)



(Photo 132; 2023-10-04 12:20)



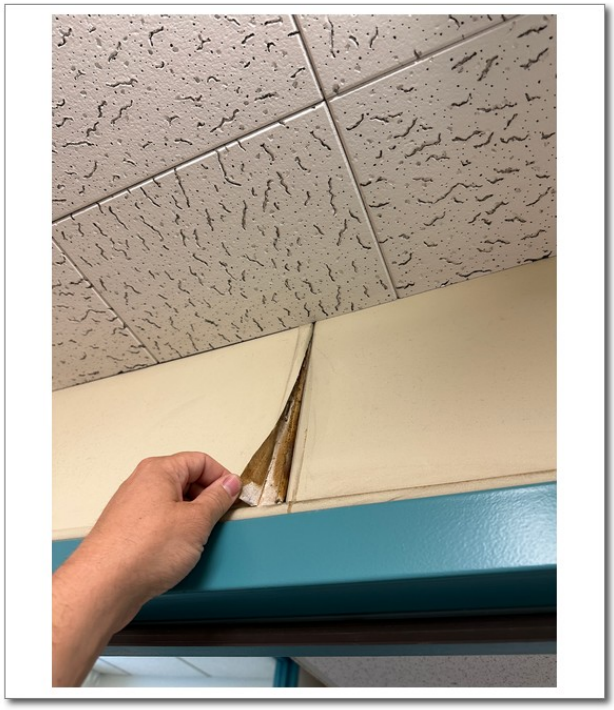
(Photo 133; 2023-10-04 12:20)



(Photo 134; 2023-10-04 12:20)



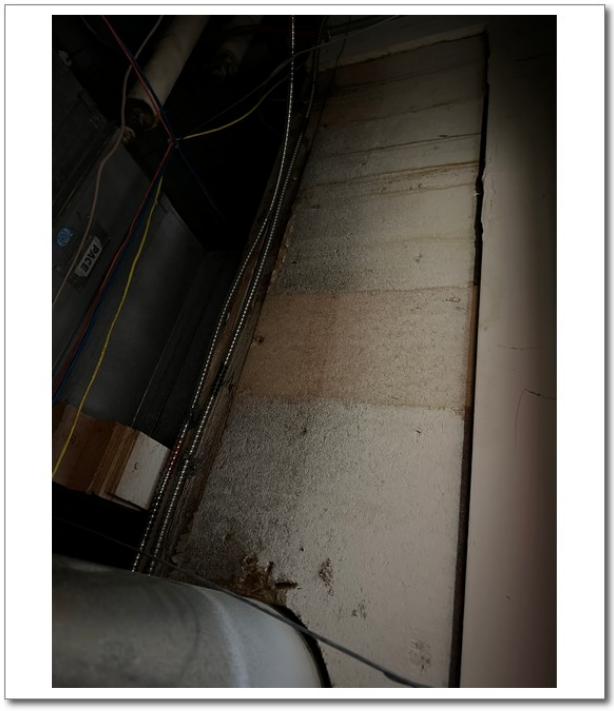
(Photo 140; 2023-10-04 14:52)



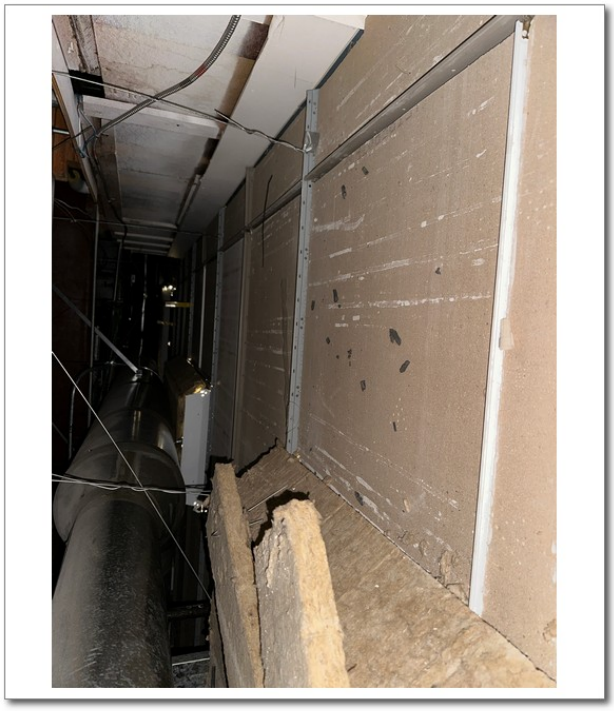
(Photo 146; 2024-05-28 07:25)



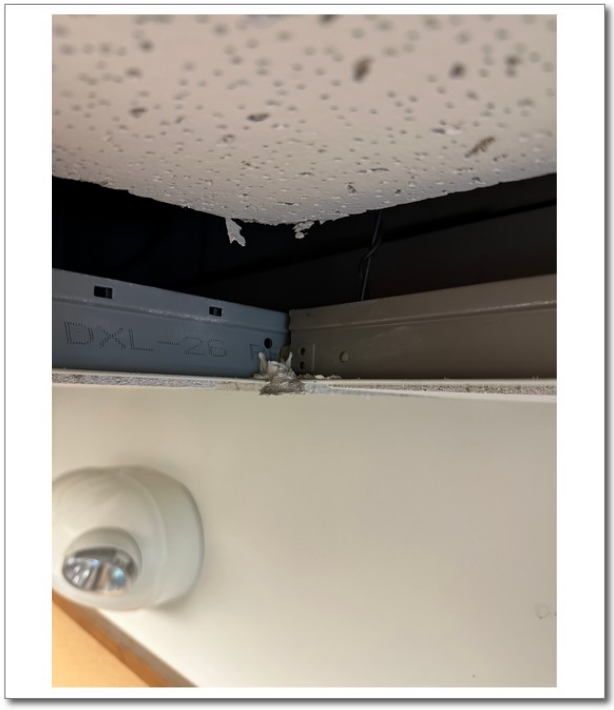
(Photo 148; 2024-05-28 07:36)



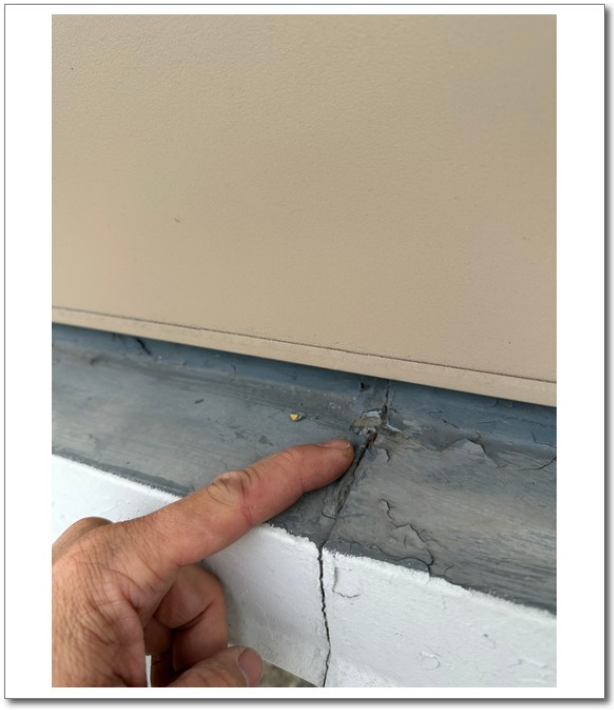
(Photo 149; 2024-05-28 07:37)



(Photo 152; 2024-05-28 07:37)



(Photo 155; 2024-05-28 07:43)



(Photo 166; 2024-05-28 08:03)



(Photo 168; 2024-05-28 08:06)



(Photo 169; 2024-05-28 08:07)



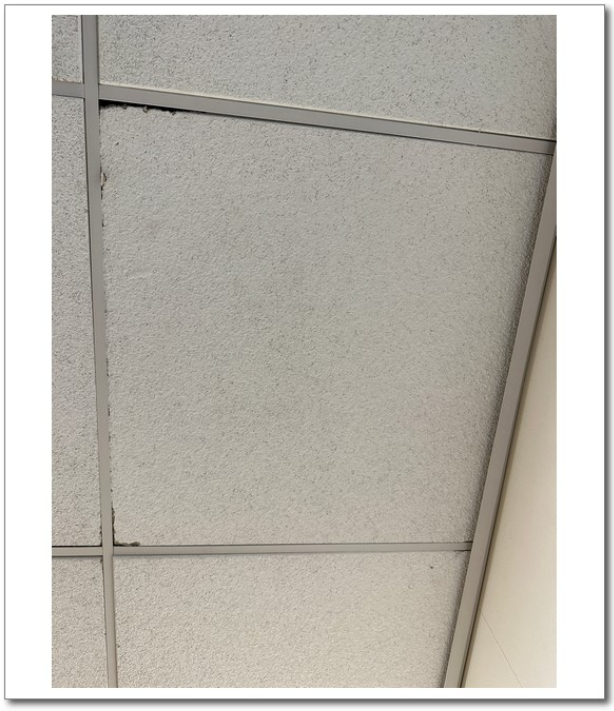
(Photo 186; 2024-05-28 08:16)



(Photo 187; 2024-05-28 08:16)



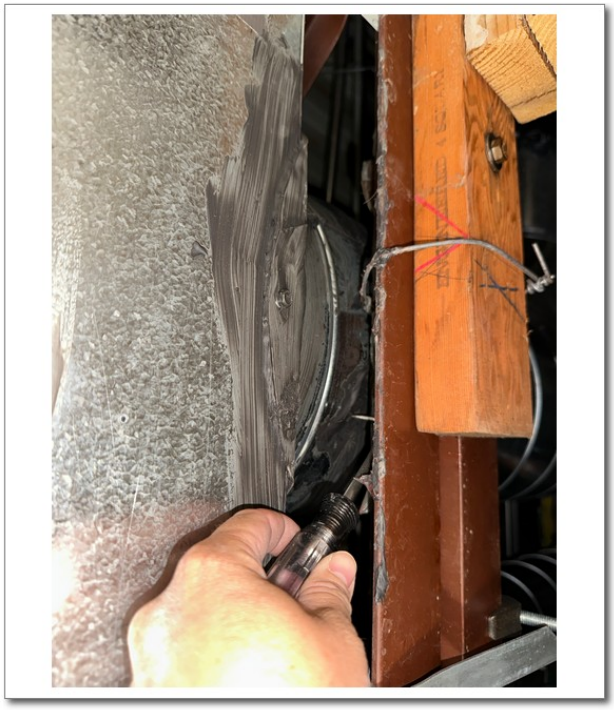
(Photo 208; 2024-05-28 08:44)



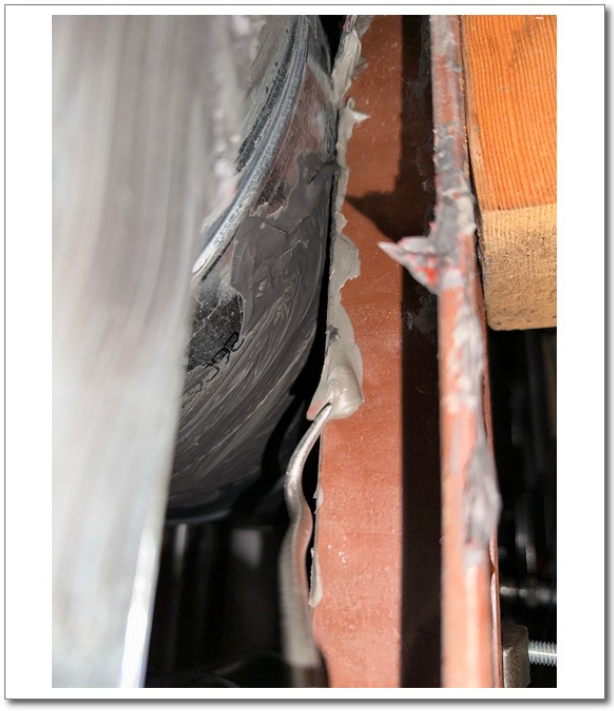
(Photo 255; 2024-05-28 09:48)



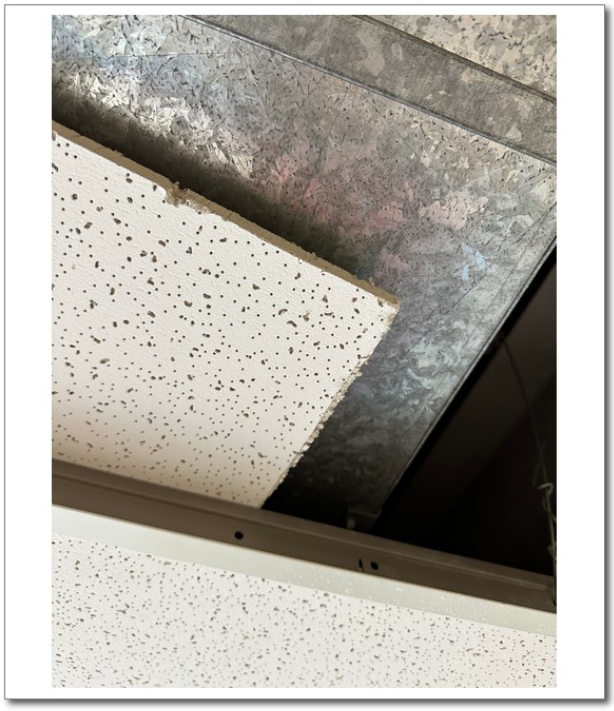
(Photo 256; 2024-05-28 09:50)



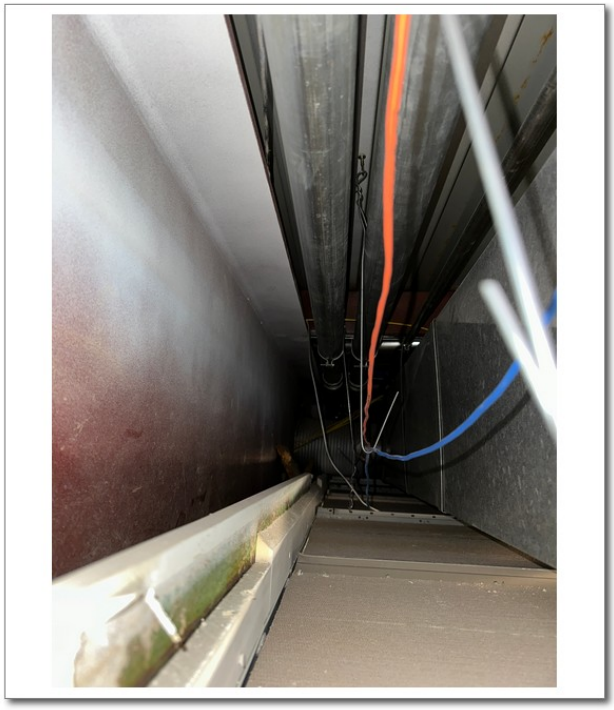
(Photo 257; 2024-05-28 09:54)



(Photo 258; 2024-05-28 09:55)



(Photo 273; 2024-05-28 10:37)



(Photo 278; 2024-05-28 10:38)



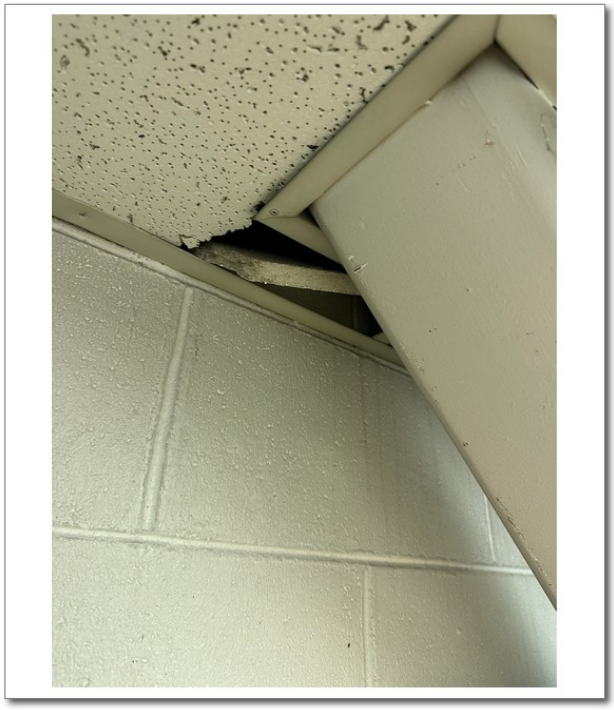
(Photo 305; 2024-05-28 11:02)



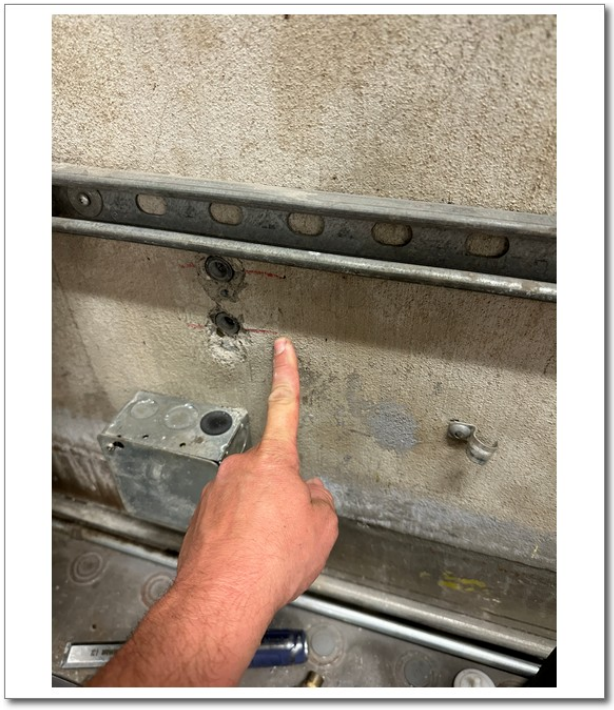
(Photo 318; 2024-05-28 11:08)



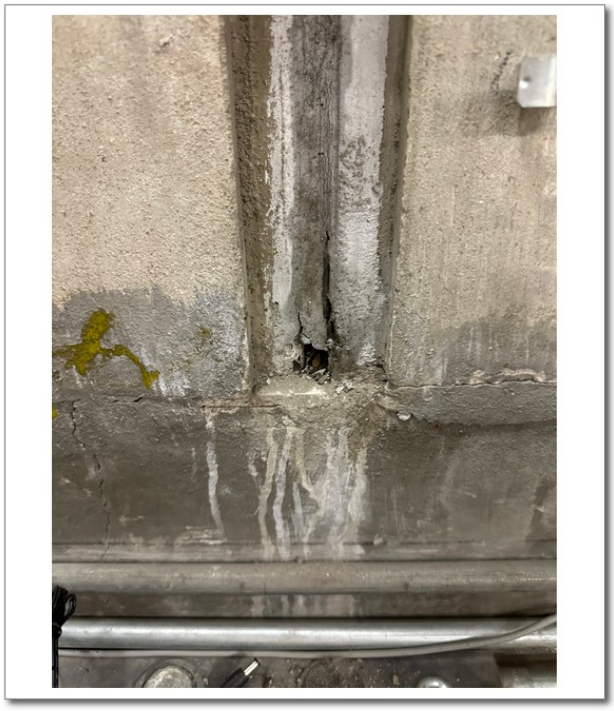
(Photo 325; 2024-05-28 11:16)



(Photo 342; 2024-05-28 12:40)



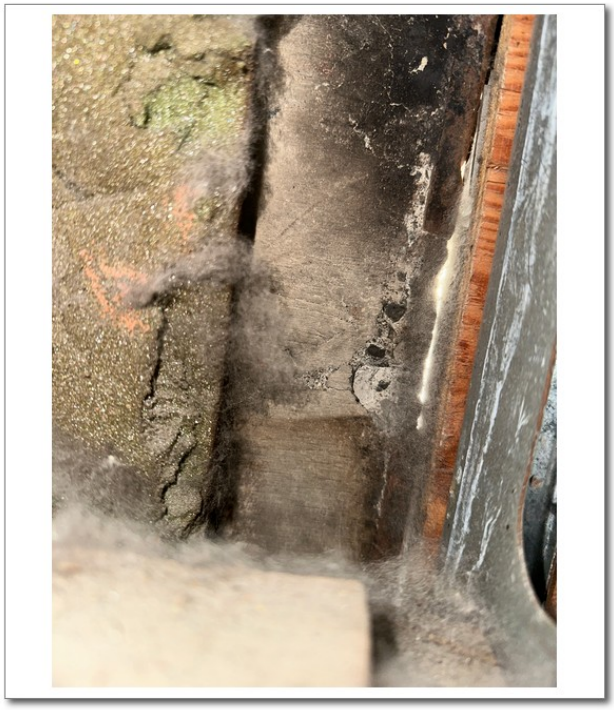
(Photo 385; 2024-05-28 12:54)



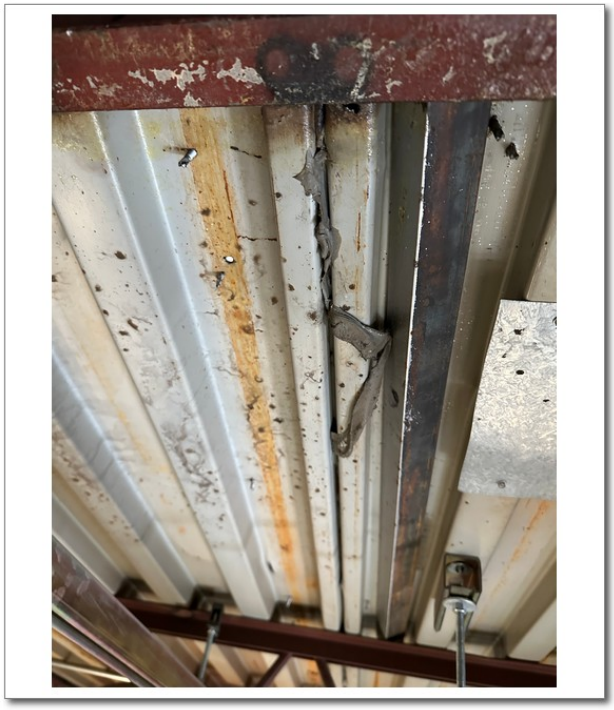
(Photo 386; 2024-05-28 12:55)



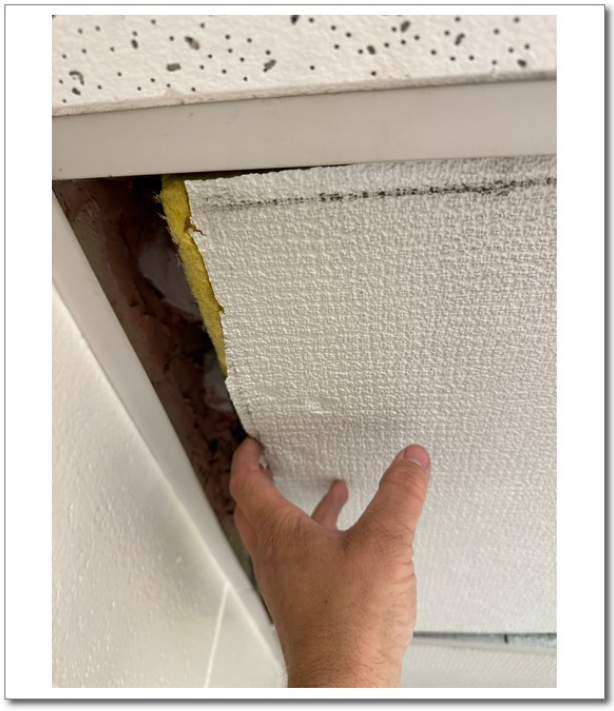
(Photo 387; 2024-05-28 13:00)



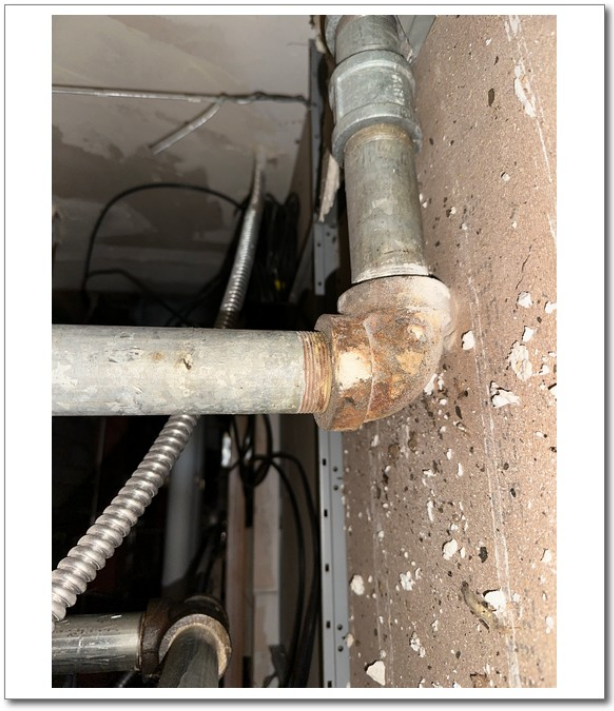
(Photo 388; 2024-05-28 13:01)



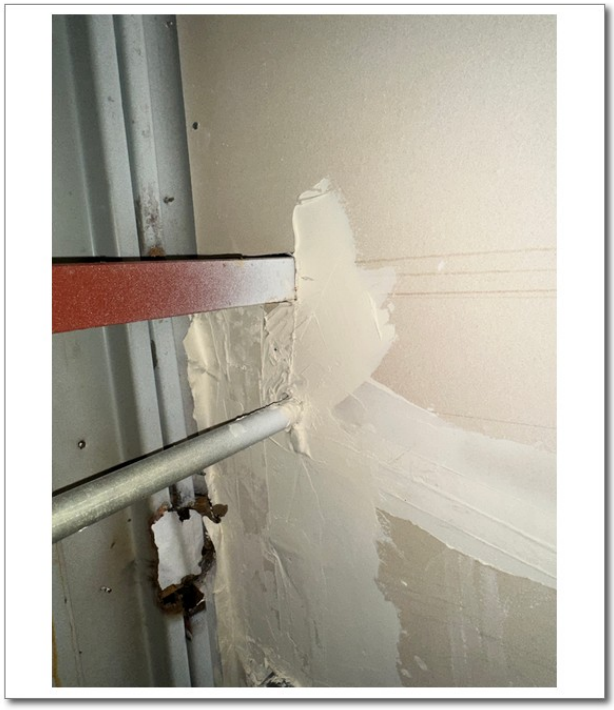
(Photo 395; 2024-05-28 13:05)



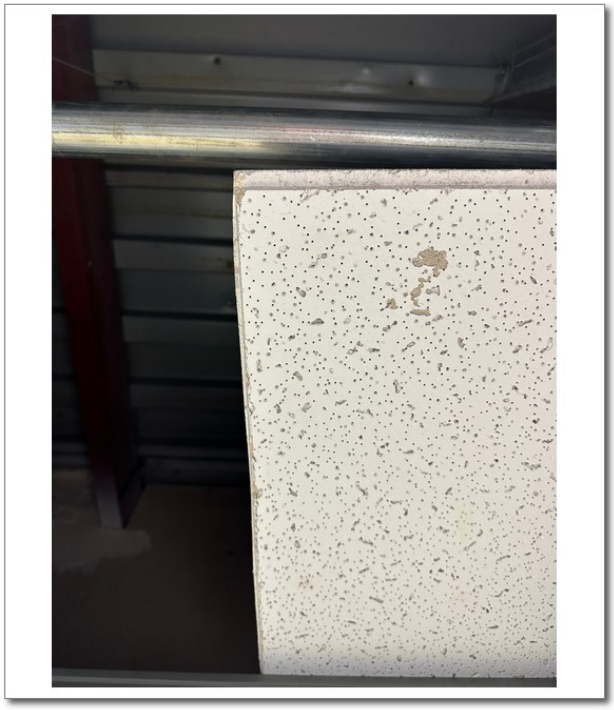
(Photo 405; 2024-05-28 13:14)



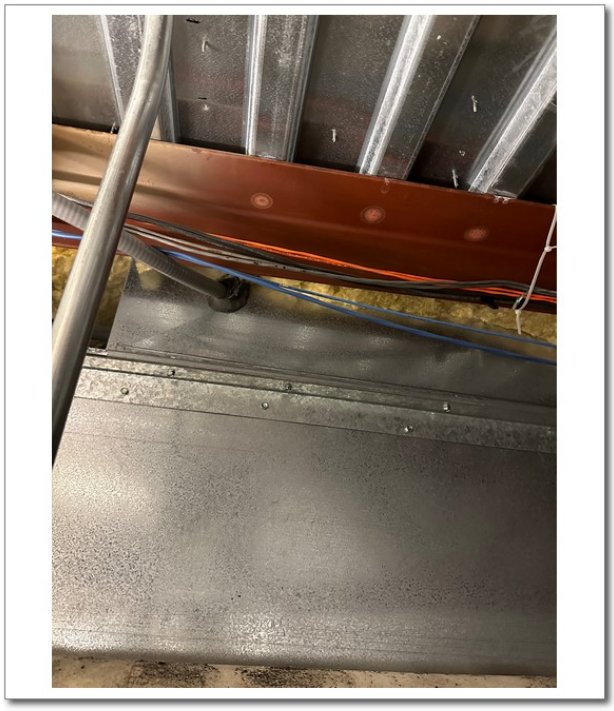
(Photo 427; 2024-05-28 13:43)



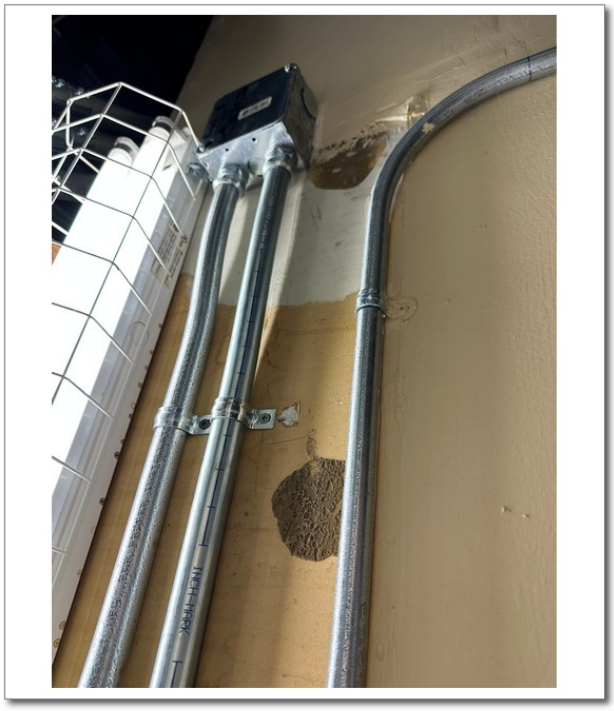
(Photo 429; 2024-05-28 13:43)



(Photo 430; 2024-05-28 13:46)



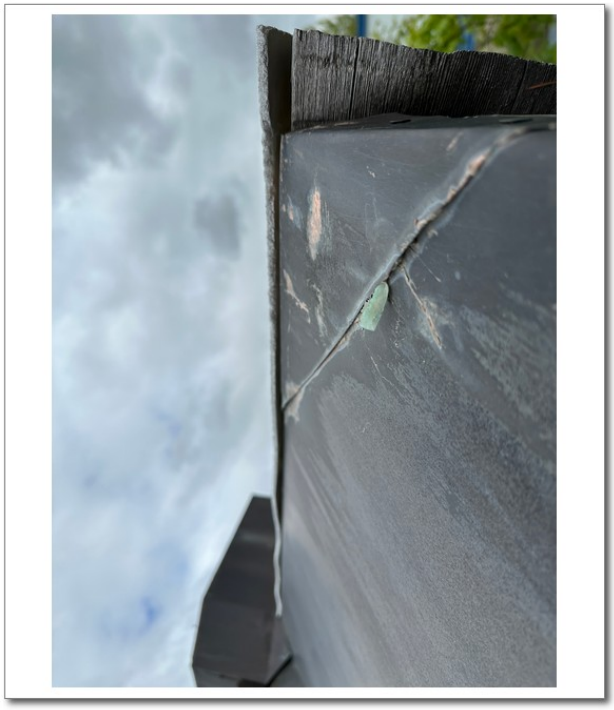
(Photo 443; 2024-05-28 13:55)



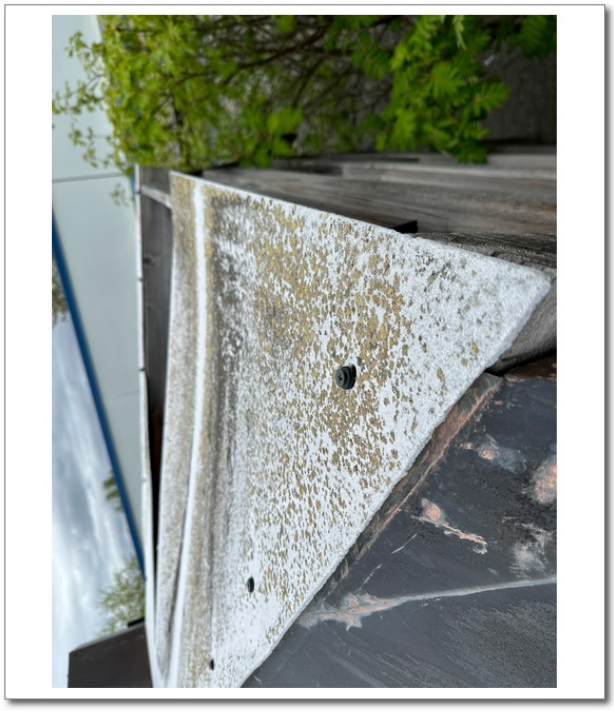
(Photo 444; 2024-05-28 13:56)



(Photo 470; 2024-05-28 14:19)



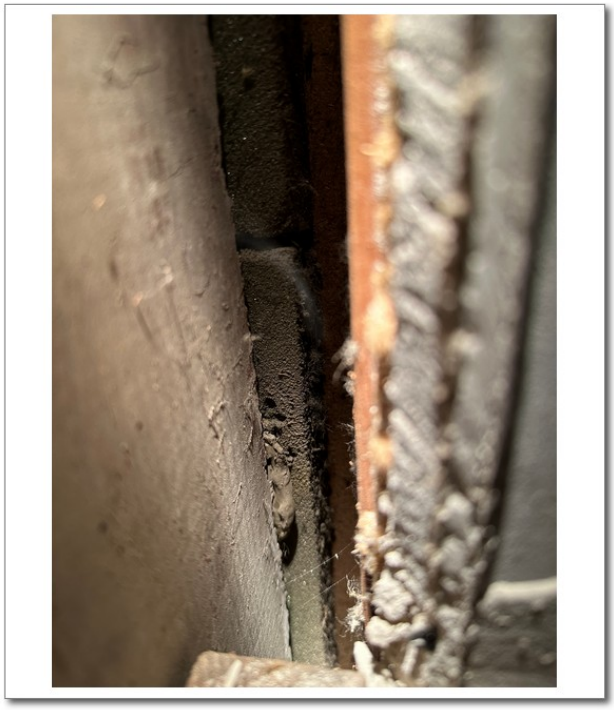
(Photo 497; 2024-05-28 14:37)



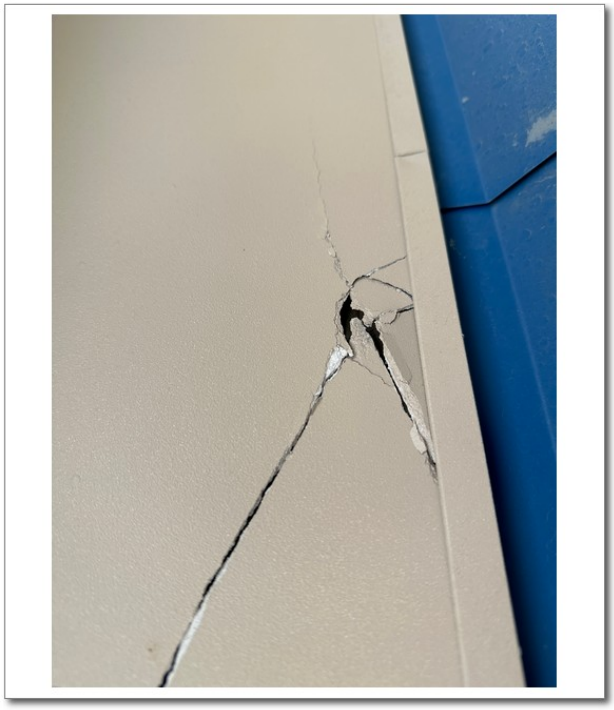
(Photo 498; 2024-05-28 14:37)



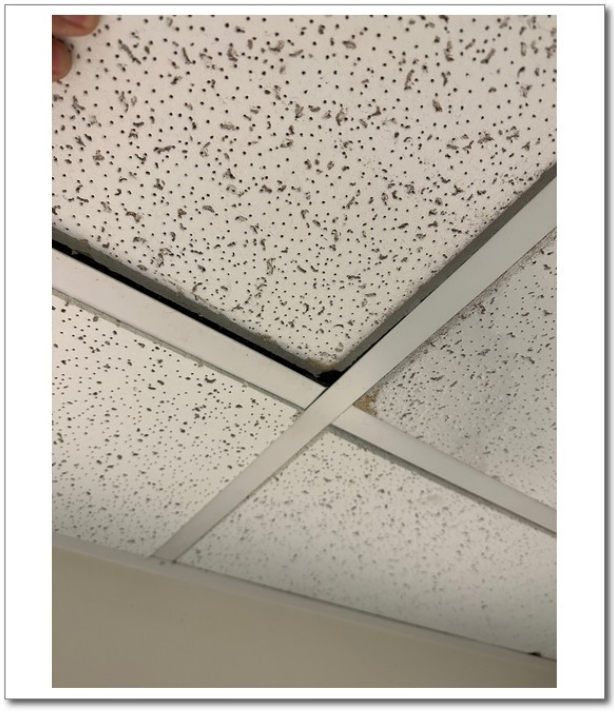
(Photo 499; 2024-05-28 14:37)



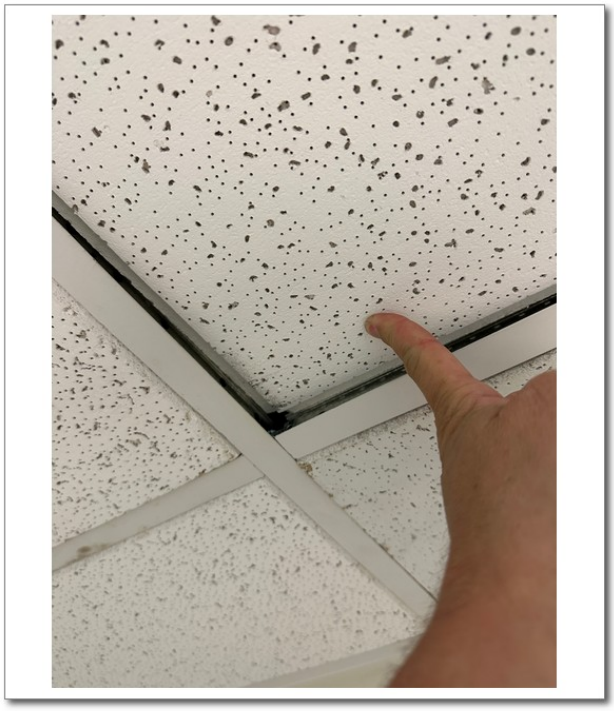
(Photo 505; 2024-05-28 14:55)



(Photo 566; 2024-05-28 15:46)



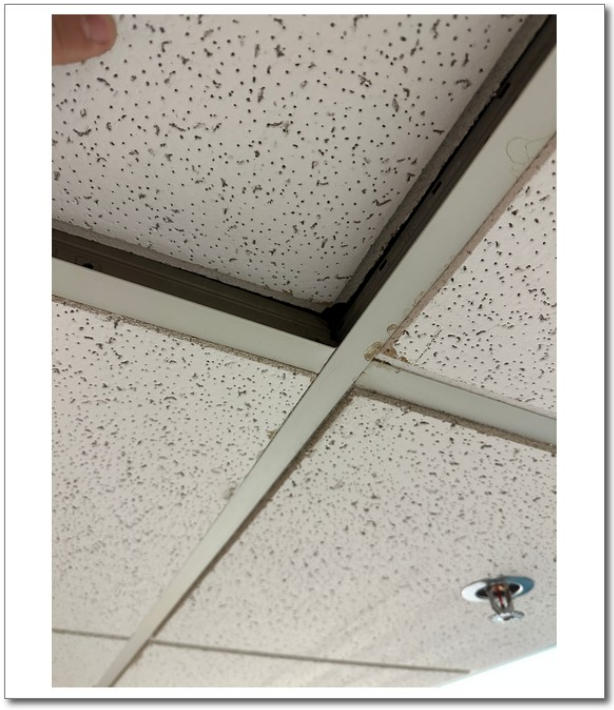
(Photo 571; 2024-05-29 09:26)



(Photo 572; 2024-05-29 09:27)



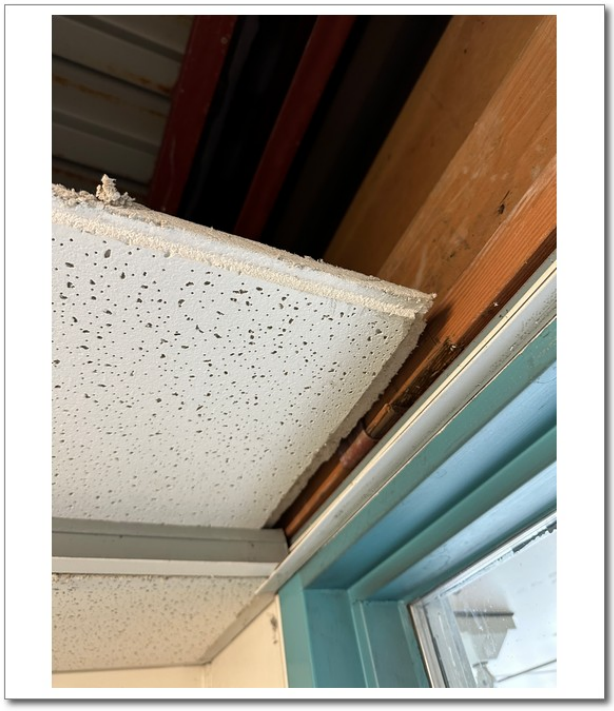
(Photo 573; 2024-05-29 09:30)



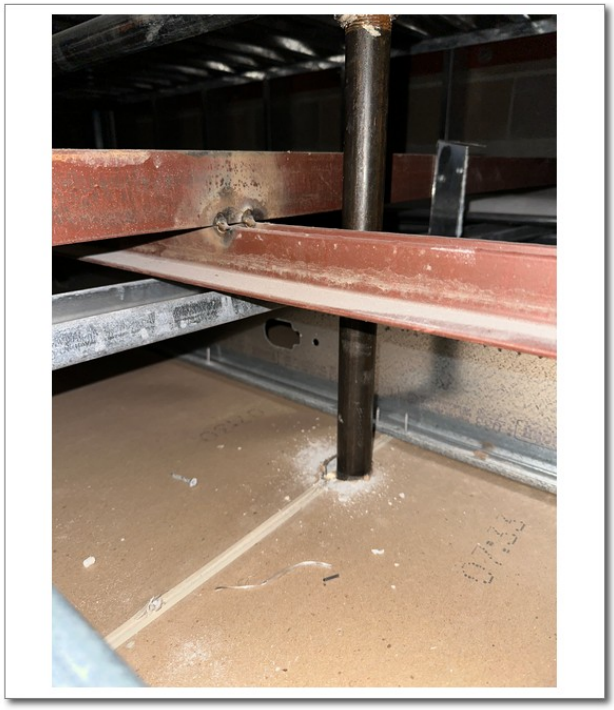
(Photo 574; 2024-05-29 09:32)



(Photo 575; 2024-05-29 09:34)



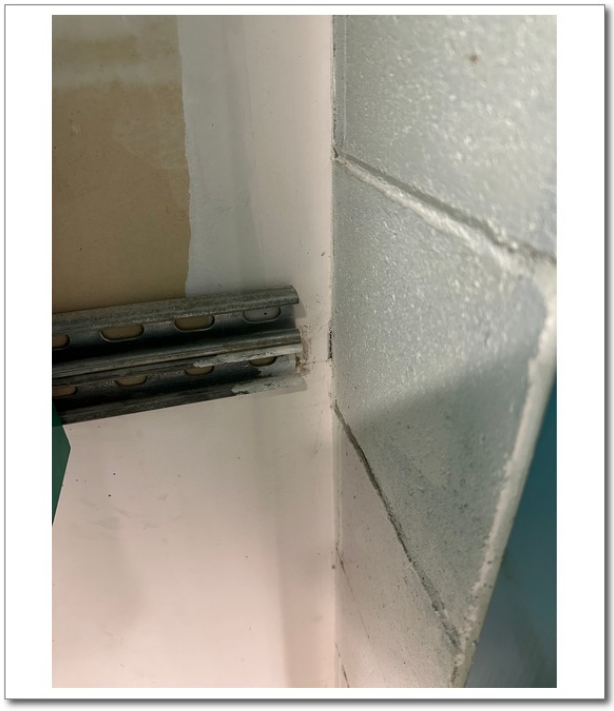
(Photo 576; 2024-05-29 09:36)



(Photo 594; 2024-05-29 09:49)



(Photo 595; 2024-05-29 10:04)



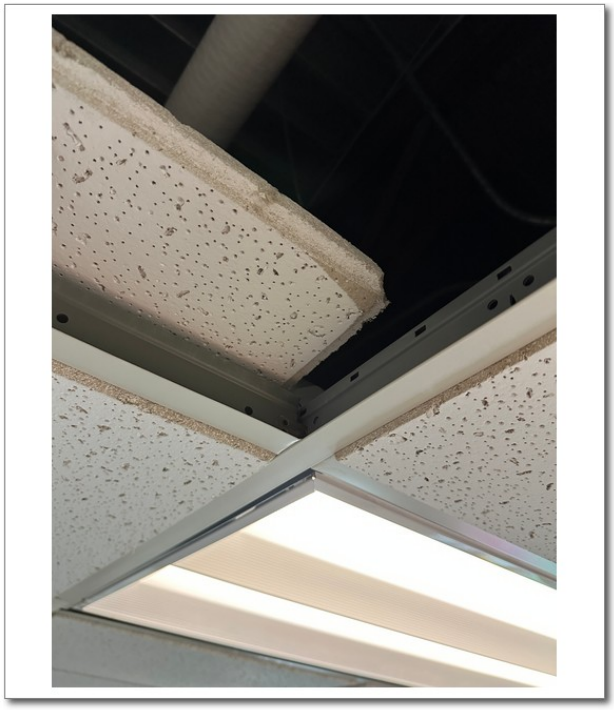
(Photo 627; 2024-05-29 10:30)



(Photo 629; 2024-05-29 10:31)



(Photo 641; 2024-05-29 10:41)



(Photo 642; 2024-05-29 10:42)



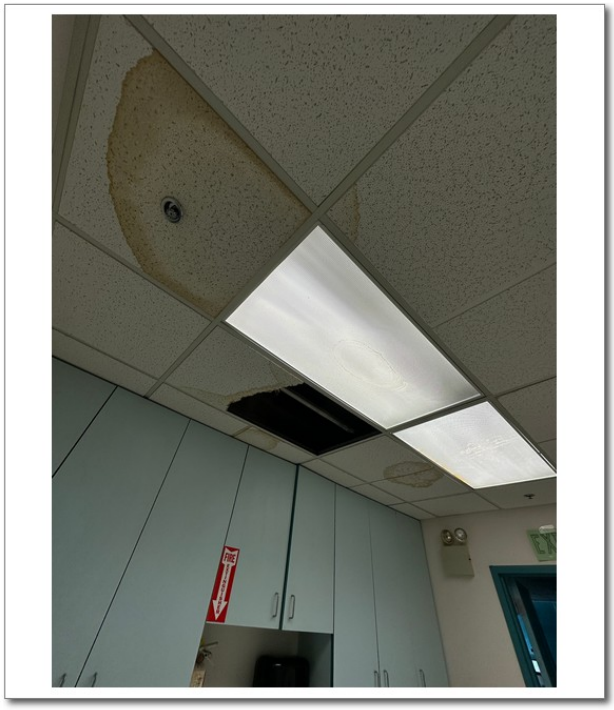
(Photo 645; 2024-05-29 10:49)



(Photo 649; 2024-05-29 10:54)



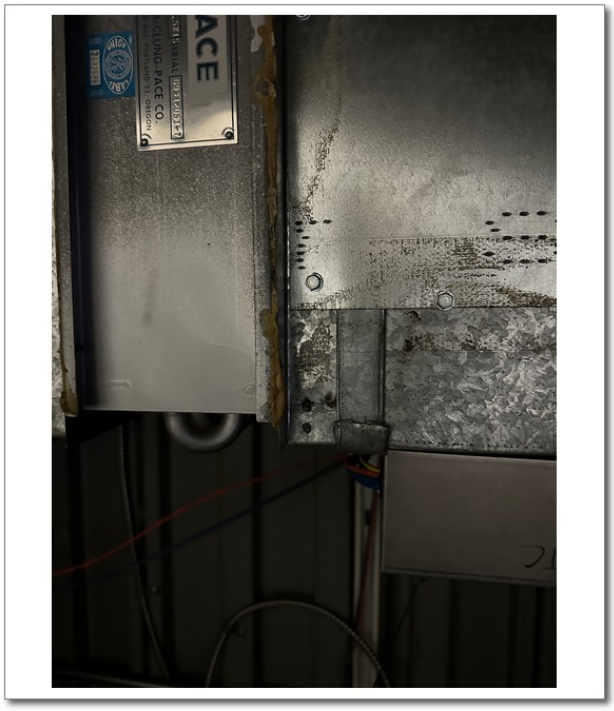
(Photo 655; 2024-05-29 11:06)



(Photo 664; 2024-05-29 11:10)



(Photo 666; 2024-05-29 11:12)



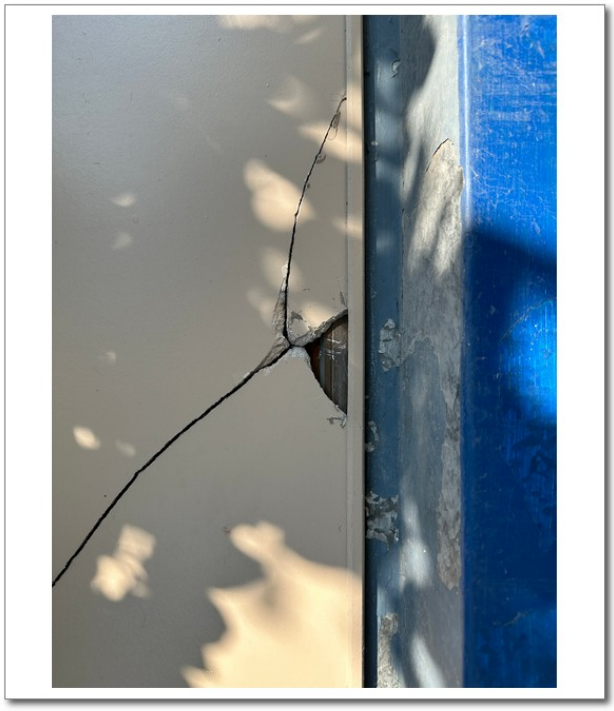
(Photo 677; 2024-05-29 11:40)



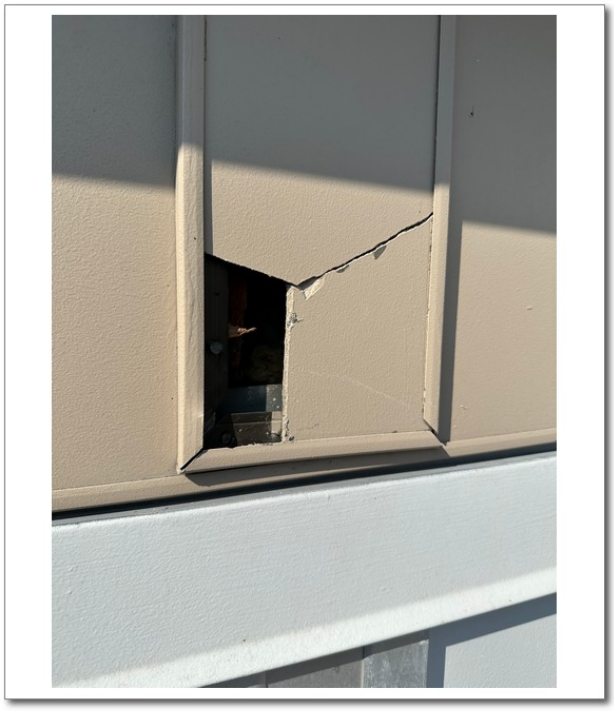
(Photo 688; 2024-05-29 11:54)



(Photo 689; 2024-05-29 11:58)



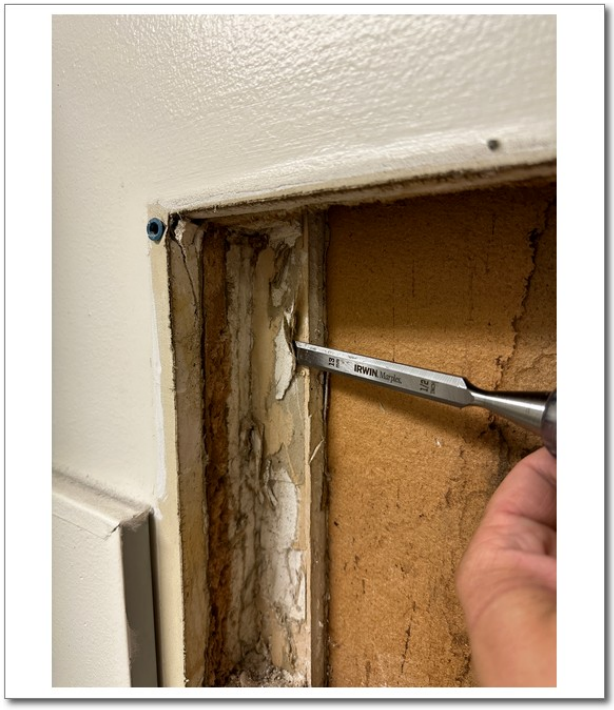
(Photo 696; 2024-07-24 17:07)



(Photo 710; 2024-07-24 17:12)



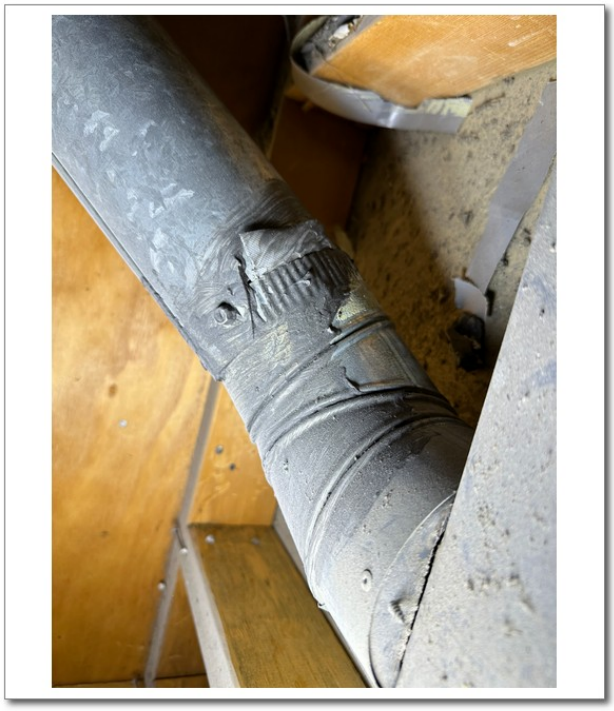
(Photo 722; 2024-07-24 17:19)



(Photo 732; 2024-07-24 17:21)



(Photo 736; 2024-07-24 17:29)



(Photo 743; 2024-07-24 17:29)

END OF SECTION

SELECTIVE DEMOLITION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

B. Notification of Potential Hazards: Asbestos, lead and other potentially hazardous materials are present in the building that may impact the work of all trades. Regulated air contaminants, including asbestos and lead, are also present in settled and concealed dust in and on architectural, structural, mechanical and electrical components or systems throughout the building. All trades shall coordinate with other trades and conduct their work to prevent worker exposure or site contamination. Refer to Specification Divisions 0, 1 and 2 for specific information concerning disturbing, removing and disposing of these materials and the installation of new materials or components. This notification is provided in accordance with EPA and OSHA requirements.

C. Notification of Child Occupied Facility: Portions of this building are classified as a Child Occupied Facility in accordance with 40 CFR 745 and lead-based paints may be present on components to be disturbed in those areas. Personnel performing work in these areas must comply with the requirements of 40 CFR 745, including training, work practices and cleaning of the work area. Refer to Specification Divisions 0, 1 and 2 for specific information concerning disturbing, removing and disposing of lead materials and the installation of new materials or components. This notification is provided in accordance with EPA and OSHA requirements.

1.2 SUMMARY

A. Section Includes:

1. Demolition and removal of selected portions of building.
2. Salvage of existing items to be reused.

B. Related Requirements:

1. Section 01010 "Summary" for restrictions on use of the premises, Owner-occupancy requirements, and phasing requirements.
2. Section 01045 “Cutting and Patching”
3. Section 01120 “Alteration Procedures” for protection of building elements.

1.3 DEFINITIONS

A. Demolish: Detach items from existing construction and dispose of them off-site unless indicated to be salvaged or reinstalled.

B. Remove and Reinstall: Detach items from existing construction, in a manner to prevent damage, prepare for reuse, and reinstall where indicated.

C. Existing to Remain: Leave existing items that are not to be removed and that are not otherwise indicated to be salvaged or reinstalled.

1.4 MATERIALS OWNERSHIP

A. Unless otherwise indicated, demolition waste becomes property of Contractor.

1.5 INFORMATIONAL SUBMITTALS

A. Proposed Protection Measures: Submit report, including Drawings, that indicates the measures proposed for protecting individuals and property, for environmental protection, and for dust control. Indicate proposed locations and construction of barriers.

1.6 FIELD CONDITIONS

A. Owner will occupy portions of building immediately adjacent to selective demolition area. Conduct selective demolition so Owner's operations will not be disrupted.

B. Conditions existing at time of inspection for bidding purpose will be maintained by Owner as far as practical.

C. Notify Contracting Officer’s Representative of discrepancies between existing conditions and Drawings before proceeding with selective demolition.

D. Hazardous Materials: Present in buildings and structures to be selectively demolished. Examine report to become aware of locations where hazardous materials are present.

1. Hazardous material remediation is specified elsewhere in the Contract Documents.
2. Do not disturb hazardous materials or items suspected of containing hazardous materials except under procedures specified elsewhere in the Contract Documents.
3. Owner will provide material safety data sheets for suspected hazardous materials that are known to be present in buildings and structures to be selectively demolished because of building operations or processes performed there.

E. Storage or sale of removed items or materials on-site is not permitted.

F. Utility Service: Maintain existing utilities indicated to remain in service and protect them against damage during selective demolition operations.

1. Maintain fire-protection facilities in service during selective demolition operations.

1.7 COORDINATION

A. Arrange selective demolition schedule so as not to interfere with Owner's operations.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Regulatory Requirements: Comply with governing EPA notification regulations before beginning selective demolition. Comply with hauling and disposal regulations of authorities having jurisdiction.

B. Standards: Comply with ASSE A10.6 and NFPA 241.

2.2 REPAIR MATERIALS

A. Use repair materials identical to existing materials.

1. If identical materials are unavailable or cannot be used for exposed surfaces, use materials that visually match existing adjacent surfaces to the fullest extent possible.
2. Use materials whose installed performance equals or surpasses that of existing materials.

B. Comply with material and installation requirements specified in individual Specification Sections.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verify that utilities have been disconnected and capped before starting selective demolition operations.

B. Review Project Record Documents of existing construction or other existing condition and hazardous material information provided by Owner. Owner does not guarantee that existing conditions are same as those indicated in Project Record Documents.

C. Verify that hazardous materials have been remediated before proceeding with building demolition operations.

3.2 UTILITY SERVICES AND MECHANICAL/ELECTRICAL SYSTEMS

A. Existing Services/Systems to Remain: Maintain services/systems indicated to remain and protect them against damage.

B. Existing Services/Systems to Be Removed, Relocated, or Abandoned: Locate, identify, disconnect, and seal or cap off utility services and mechanical/electrical systems serving areas to be selectively demolished.

1. Owner will arrange to shut off indicated services/systems when requested by Contractor.
2. Contractor to turn off and on breakers.
3. Contractor to request Siemens to control fan units.

3.3 PROTECTION

A. Temporary Protection: Provide temporary barricades and other protection required to prevent injury to people and damage to adjacent buildings and facilities to remain.

1. Provide protection to ensure safe passage of people around selective demolition area and to and from occupied portions of building.
2. Provide temporary weather protection, during interval between selective demolition of existing construction on exterior surfaces and new construction, to prevent water leakage and damage to structure and interior areas.
3. Protect walls, ceilings, floors, and other existing finish work that are to remain or that are exposed during selective demolition operations.
4. Cover and protect furniture, furnishings, and equipment that have not been removed.
5. Section 01120 “Alteration Procedures” for protection of building elements
6. Comply with requirements for temporary enclosures, dust control, heating, and cooling specified in Section 01500 "Temporary Facilities."

B. Remove temporary barricades and protections where hazards no longer exist.

3.4 SELECTIVE DEMOLITION, GENERAL

A. General: Demolish and remove existing construction only to the extent required by new construction and as indicated. Use methods required to complete the Work within limitations of governing regulations and as follows:

1. Neatly cut openings and holes plumb, square, and true to dimensions required. Use cutting methods least likely to damage construction to remain or adjoining construction. Use hand tools or small power tools designed for sawing or grinding, not hammering and chopping. Temporarily cover openings to remain.
2. Cut or drill from the exposed or finished side into concealed surfaces to avoid marring existing finished surfaces.
3. Do not use cutting torches until work area is cleared of flammable materials. At concealed spaces, such as duct and pipe interiors, verify condition and contents of hidden space before starting flame-cutting operations. Maintain portable fire-suppression devices during flame-cutting operations.
4. Maintain fire watch during and for at least four hours after flame-cutting operations.
5. Maintain adequate ventilation when using cutting torches.
6. Remove decayed, vermin-infested, or otherwise dangerous or unsuitable materials and promptly dispose of off-site.
7. Locate selective demolition equipment and remove debris and materials so as not to impose excessive loads on supporting walls, floors, or framing.
8. Dispose of demolished items and materials promptly.

B. Site Access and Temporary Controls: Conduct selective demolition and debris-removal operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.

C. Removed and Reinstalled Items:

1. Clean and repair items to functional condition adequate for intended reuse.
2. Reinstall items in locations indicated. Comply with installation requirements for new materials and equipment. Provide connections, supports, and miscellaneous materials necessary to make item functional for use indicated.

D. Existing Items to Remain: Protect construction indicated to remain against damage and soiling during selective demolition. When permitted by Architect, items may be removed to a suitable, protected storage location during selective demolition and reinstalled in their original locations after selective demolition operations are complete.

3.5 SELECTIVE DEMOLITION PROCEDURES FOR SPECIFIC MATERIALS

A. Roofing: Remove no more existing roofing than what can be covered in one day by new roofing so that building interior remains watertight and weathertight. See Section 07 53 23 “Ethylene-Propylene-Diene-Monomer (EPDM) Roofing” for new roofing requirements.

1. Remove existing roof membrane, flashings, copings, and roof accessories.
2. Remove existing roofing system down to roof deck.

3.6 DISPOSAL OF DEMOLISHED MATERIALS

A. Remove demolition waste materials from Project site and dispose of them in an EPA-approved construction and demolition waste landfill acceptable to authorities having jurisdiction.

1. Do not allow demolished materials to accumulate on-site.
2. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.

B. Burning: Do not burn demolished materials.

3.7 CLEANING

A. Clean adjacent structures and improvements of dust, dirt, and debris caused by selective demolition operations. Return adjacent areas to condition existing before selective demolition operations began.

END OF SECTION

REMOVAL AND DISPOSAL OF ASBESTOS CONTAINING MATERIALS

PART 1 – GENERAL

1.1. NOTIFICATIONS

A. Notification of Potential Hazards: Asbestos, lead and other potentially hazardous materials are present in the building that may impact the work of all trades. Regulated air contaminants, including asbestos and lead, are also present in settled and concealed dust in and on architectural, structural, mechanical and electrical components or systems throughout the building. All trades shall coordinate with other trades and conduct their work to prevent worker exposure or site contamination. Refer to Specification Divisions 0, 1 and 2 for specific information concerning disturbing, removing and disposing of these materials and the installation of new materials or components. This notification is provided in accordance with EPA and OSHA requirements.

B. Notification of Child Occupied Facility: Portions of this building are classified as a Child Occupied Facility in accordance with 40 CFR 745 and lead-based paints may be present on components to be disturbed in those areas. Personnel performing work in these areas must comply with the requirements of 40 CFR 745, including training, work practices and cleaning of the work area. Refer to Specification Divisions 0, 1 and 2 for specific information concerning disturbing, removing and disposing of lead materials and the installation of new materials or components. This notification is provided in accordance with EPA and OSHA requirements.

1.2. SECTION INCLUDES

A. This section applies to work involving the removal, disturbance, transportation, and disposal of materials with asbestos.

B. This section does not apply to or address requirements related to any other health, safety, or environmental concerns related to other types of materials or conditions which may be present at this site.

1.3. CONTRACT DOCUMENTS AND RELATED REQUIREMENTS

A. Drawings and general provisions of the contract, including general and supplementary conditions and other Division 0, 1, and 2 specifications, apply to the work of this section. The contract documents show or describe the work to be done under the contract including related requirements and conditions impacting the project. Related requirements and conditions include, but are not limited to, applicable codes and regulations, notices and permits, existing site conditions and restrictions on use of the site, security of the site, requirements for partial owner occupancy during the work, coordination with other work and the phasing of the work, among others. In the event the Contractor discovers a conflict in the contract documents and/or requirements, the conflict must be brought to the immediate attention of the Owner for resolution. Whenever there is a conflict or overlap in the requirements, the most stringent shall apply. Any actions taken by the Contractor without authorization from the Owner shall become the sole risk and responsibility of the Contractor. All costs incurred due to such action are also the responsibility of the Contractor.

1.4. RELATED WORK

A. 02 26 00 – Hazardous Materials Assessment

B. 02 88 00 – Removal and Disposal of Miscellaneous Hazardous Materials

1.5. REFERENCE STANDARDS

A. The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

B. All work under this contract shall be done in strict accordance with all applicable federal, state, and local regulations, standards and codes governing asbestos work, and any other trade work done in conjunction with the project. All applicable codes, regulations, and standards are adopted into this specification and will have the same force and effect as this specification.

C. The most recent edition of any relevant regulation, standard, document, or code shall be in effect. Where conflict among the requirements or with these specifications exists, the most stringent requirement(s) shall be utilized.

D. All related regulations, statutes, public laws, registers, and regulatory guidance are incorporated by reference.

E. Alaska Administrative Code (AAC)

1. 8 AAC 61 Occupational Safety and Health Division

2. 8 AAC 61.600-790 Asbestos Abatement Certification

3. 8 AAC 61.1010-1190 Occupational Safety and Health Standards

4. 17 AAC 25 Operations, Wheeled Vehicles

5. 18 AAC 60 Solid Waste Management

6. 18 AAC 60.450 Asbestos Disposal Regulations

7. 18 AAC 62 Hazardous Waste

8. 18 AAC 70 Water Quality Standards

9. 18 AAC 72 Wastewater Treatment and Disposal

10. 18 AAC 75 Oil and Other Hazardous Substances Pollution Control

F. Alaska Statutes (AS)

1. AS Section 18.31 Asbestos

2. AS Section 18.60 Safety

3. AS Section 18.62 Certificates of Fitness

4. AS Section 23.05 Department of Labor and Workforce Development

G. American National Standards Institute (ANSI)

1. ANSI Z41.1 Personal Protection - Protective Footwear

2. ANSI Z535 Series Safety Alerting Standards

H. American Society of Safety Professionals (ASSP)

1. ASSP Z9.2 Fundamentals Governing the Design and Operation of Local Exhaust Ventilation Systems

I. ASTM International (ASTM)

1. ASTM C732 Aging Effects of Artificial Weathering on Latex Sealants

2. ASTM D522/D522M Mandrel Bend Test of Attached Organic Coatings

3. ASTM D2794 Standard Test Method for Resistance of Organic Coatings to the Effects of Rapid Deformation (Impact)

4. ASTM D4397 Standard Specification for Polyethylene Sheeting for Construction, Industrial, and Agricultural Applications

5. ASTM D4801 Standard Specification for Polyethylene Sheeting in Thickness of 0.25 mm (0.010 in.) and Greater

6. ASTM E84 Standard Test Method for Surface Burning Characteristics of Building Materials

7. ASTM E96/E96M Standard Test Methods for Water Vapor Transmission of Materials

8. ASTM E119 Standard Test Methods for Fire Tests of Building Construction and Materials

9. ASTM E736/E736M Standard Test Method for Cohesion/Adhesion of Sprayed Fire-Resistive Materials Applied to Structural Members

10. ASTM E1368 Visual Inspection of Asbestos Abatement Projects

J. Compressed Gas Association (CGA)

1. CGA G-7 Compressed Air for Human Respiration; 6th Edition

K. Institute of Environmental Sciences and Technology (IEST)

1. IEST-Recommended Practices-Contaminant Control (IEST-RP-CC-xxxx) Series

L. International Air Transport Association (IATA)

1. IATA DGR Dangerous Goods Regulations

M. International Organization for Standardization (ISO)

1. ISO 13.340 Protective Equipment Series Standards

N. International Safety Equipment Association (ISEA)

1. ANSI/ISEA 101 Limited-Use and Disposable Coveralls—Size and Labeling Requirements

2. ANSI/ISEA 105 Hand Protection Classification

3. ANSI/ISEA Z87.1 Occupational and Educational Personal Eye and Face Protection Devices

4. ANSI/ISEA Z88 Series Respiratory Protection Standards

O. National Fire Protection Association (NFPA)

1. NFPA 701 Standard Methods of Fire Tests for Flame Propagation of Textiles and Films

2. NFPA 1990 Standard for Protective Ensembles for Hazardous Materials and CBRN Operations

P. National Institute for Occupational Safety and Health (NIOSH)

1. NIOSH NMAM NIOSH Manual of Analytical Methods

Q. Underwriters Laboratories (UL)

1. UL 586 Standard for Safety High-Efficiency Particulate, Air Filter Units

R. United States Army Corps of Engineers (USACE)

1. Engineer Manual EM 385-1-1 Safety and Health Requirements

S. United States Department of Transportation

1. 49 CFR 107 Hazardous Materials Program Procedures

2. 49 CFR 171 General Information, Regulations, and Definitions

3. 49 CFR 172 Hazardous Materials Table, Special Provisions, Hazardous Materials Communications, Emergency Response Information, and Training Requirements

4. 49 CFR 173 Shippers - General Requirements for Shipments and Packagings

T. United States Environmental Protection Agency (EPA)

1. EPA 340/1-90/018 Asbestos/NESHAP Regulated Asbestos Containing Materials Guidance

2. 40 CFR 61-Subpart A General Provisions

3. 40 CFR 61-Subpart M National Emission Standard for Asbestos

4. 40 CFR 763 Asbestos

U. United States Military Standards

1. MIL-STD-282 Filter Units, Protective Clothing, Gas-Mask Components and Related Products: Performance Test Methods

V. United States Occupational Safety and Health Administration (OSHA)

1. 29 CFR 1910.120 Appendix B General Description and Discussion of the Levels of Protection and Protective Gear.

2. 29 CFR 1910 Subpart I Appendix A Nonmandatory Compliance Guidelines for Hazard Assessment and Personal Protective Equipment Selection

3. 29 CFR 1910.134 Respiratory Protection

4. 29 CFR 1926 Safety and Health Regulations for Construction

5. 29 CFR 1926.21 Safety Training and Education

6. 29 CFR 1926.28 Personal Protective Equipment

7. 29 CFR 1926.32 Definitions

8. 29 CFR 1926.51 Sanitation

9. 29 CFR 1926.55 Gases, Vapors, Fumes, Dusts, and Mists

10. 29 CFR 1926.59 Hazard Communication

11. 29 CFR 1926 Subpart E (Parts 95-107) Personal Protective and Life Saving Equipment

12. 29 CFR 1926.95 Criteria for Personal Protective Equipment

13. 29 CFR 1926.103 Respiratory Protection

14. 29 CFR 1926.200 Accident Prevention Signs and Tags

15. 29 CFR 1926.1101 Asbestos

16. OSHA Publication 3071 Job Hazard Analysis

1.6. DEFINITIONS

A. Definitions used in this section include those used in Divisions 0, 1, and 2; those defined by the Reference Standards listed above; and the following:

B. Asbestos Abatement Contractor (AAC)

1. The Asbestos Abatement Contractor (AAC) means the specialty contractor or subcontractor hired by the General Contractor, the Owner, or other authorized entity to perform the work covered by this section.

C. Auxiliary Work

1. Auxiliary Work is intended to include all work that is not defined as a Major Element by this section. An example of Auxiliary Work includes work such as routing of new mechanical or electrical systems within the Main Work Areas and to areas outside of the Main Work Area(s).

D. Contractor's Professional Industrial Hygienist (CPIH)

1. The Contractor's Professional Industrial Hygienist (CPIH) is responsible for all monitoring, inspections, sampling, and testing which is not work required to be performed by the IIHT. The CPIH may be hired directly by the AAC.

E. General Contractor (GC)

1. General Contractor (GC) means the entity the Owner has entered into agreement with to serve as the overall authority of the construction-related aspects of the contract.

F. Hazardous Materials Assessment (HMA)

1. Hazardous Materials Assessment (HMA) means any reports or other existing information related to asbestos-containing materials or other potentially hazardous materials present at the site which is provided prior to the award of the contract.

G. Main Work Area

1. Main Work Area is intended to include area(s) which have defined boundaries where the majority of work is located.

H. Major Element

1. Major Element is intended to include the elements of work which are located within the Main Work Area(s), whose scope is not subject to variations in means or methods, and can generally be identified solely by graphical representation or notation on the contract drawings.

I. Independent Industrial Hygiene Technician (IIHT)

1. The Independent Industrial Hygiene Technician (IIHT) is responsible for conducting all Final Visual Inspections and Clearance Air Monitoring required by this section. The IIHT and IIHT's employer must be completely independent of the AAC and must have no employee or employer relationship which could constitute a conflict of interest.

1.7. QUALITY ASSURANCE

A. General

1. Administrative and supervisory personnel shall, at a minimum, consist of the AAC, AAC's approved Competent Person, the accredited Project Designer, the CPIH, and the IIHT. These employees are the GC's representatives responsible for compliance with this section. Non-supervisory personnel must consist of an adequate number of qualified personnel to meet the performance requirements of the project. All personnel must meet required qualifications.

2. Comply with the specific requirements of this contract, 29 CFR 1926.1101, 40 CFR 763, 40 CFR 61 Subpart M, 8 AAC 61.600-790, and other applicable laws, ordinances, rules, and regulations of federal, state, and local authorities having jurisdiction regarding removing, handling, storing, transporting, and disposal of asbestos-containing materials. Notify the Owner and request resolution of conflicts between regulations and specified requirements before starting work.

B. Responsibilities

1. Owner Responsibilities Prior to Commencement of Work
   a. The Owner will notify occupants adjacent to regulated areas of project dates and requirements for relocation, if needed. Arrangements must be made prior to starting work for relocation of desks, files, equipment, and personal possessions to avoid unauthorized access into the regulated area. The Owner will coordinate utilities use, locations, and other conditions of use with the GC.

2. Asbestos Abatement Subcontractor Responsibility
   a. The AAC shall assume primary responsibility and liability for compliance with all applicable federal, state, and local regulations related to all aspects of the asbestos abatement work. The GC shall assume secondary responsibility and liability for their own and their other sub-contractor's compliance with all applicable federal, state, and local regulations as it relates to potential asbestos disturbance. The AAC and GC are responsible for providing and maintaining required documentation including, but not limited to, training, accreditations, medical exams, medical records, personal protective equipment (PPE), respiratory protection, and respirator fit testing, as required by applicable federal, state, and local regulations and this section. The AAC and GC must hold the Owner harmless for any Contractor failure to comply with any applicable work, packaging, transporting, disposal, safety, health, or environmental regulations or contract requirements on the part of themself, their employees, or their subcontractors.

C. Site Conditions

1. The condition of the asbestos-containing materials at the site are described in the HMA, and those conditions were accurate as of the dates of inspection cited in that HMA. Prior to starting work in any area, the AAC and GC must verify the accuracy of the conditions that are presented in the HMA, the hazards abatement design drawings and specifications, and the AAC’s approved Asbestos Hazard Abatement Plan (AHAP).

2. The building may be occupied and in use during the work. The AAC and GC must coordinate the timing of work with the Owner and other trades to ensure there are no adverse effects to building functions or occupants, and that other performance requirements of the contract are met.

D. Security

1. The AAC and GC are jointly responsible for and must control access to the regulated work areas and areas where asbestos wastes are stored for the duration of the project.

2. Access to the regulated work areas and areas where asbestos wastes are being stored must be restricted to properly trained and protected persons authorized to be in those areas. Entry into these areas by unauthorized persons must be reported immediately to the Competent Person by anyone observing the entry. The Competent Person must immediately require any unauthorized person to leave the regulated area and then notify the Owner and the GC.

E. Variations in Quantity

1. The estimated quantities of asbestos-containing materials to be removed and/or disturbed are shown on the hazards abatement drawings. Nothing in this section may be interpreted as limiting the extent of work otherwise required by this contract and related documents. Refer to the HMA for detailed information on the asbestos-containing materials known or assumed to be present at this site.

2. The estimated quantities are to be considered a baseline for bidding purposes only and are based on limited assessments of materials located within the project work areas which were made accessible to the State-accredited Building Inspector along with additional information made available to the State-accredited Project Designer for use in preparing the hazards abatement drawings and specifications. The AAC and GC must satisfy themselves of the actual quantities to be removed and disposed of and to conduct that work in accordance with applicable laws of the authorities having jurisdiction. The AAC and GC must document the locations and quantities of asbestos-containing materials removed each day from each work area. Quantities of asbestos-containing materials must match the units used on the hazards abatement drawings. Where, in the opinion of the AAC or GC, the use of alternative units is necessary, those alternative units may be used with preapproval from the Owner. Minor variations (+/- 10 percent) in the quantities of asbestos-containing materials shown on the hazards abatement drawings are considered as having no impact on contract price or the performance requirements of this contract. The AAC and GC must submit unit pricing within their bid for each asbestos-containing material identified on the drawings in case additional quantities of material in excess of the minor variation stated above are required to be removed or disturbed and disposed of in order to accommodate the work. The unit prices submitted by the AAC and GC are to be used as the cost basis for additional work required under the contract.

F. Preconstruction Conference

1. After the Preconstruction Submittals have been reviewed and approved, a pre-construction meeting must be held with the following parties in attendance at a minimum: the GC, the AAC and their Competent Person(s), other interested sub-contractors, the CPIH, the IIHT, and the Owner. The goals of the pre-construction meeting are to discuss the planned scope, phasing, and overall coordination and execution of the asbestos abatement work; to verify that the approved Preconstruction Submittals are still valid; to identify any potential issues with the project scope, timing, or planning as it relates to the asbestos abatement scope of work, and to ensure agreement among the parties prior to commencing work. The pre-construction meeting minutes and sign in sheet must be submitted to the Owner within 5 days after the completion of the pre-construction meeting.

G. Stop Asbestos Removal

1. If the Owner or representative of a regulatory authority having jurisdiction presents a verbal Stop Asbestos Removal Order, the AAC and GC must immediately stop all asbestos removal and maintain HEPA filtered negative pressure air flow in the containment and adequately wet any exposed ACM. If a verbal Stop Asbestos Removal Order is issued, the Owner or a representative of a regulatory authority having jurisdiction will follow-up with a written order to the AAC and GC as soon as it is practicable. The AAC and GC must not resume any asbestos removal activity until authorized to do so in writing by the Owner or a representative of a regulatory authority having jurisdiction. A Stop Asbestos Removal Order may be issued at any time the Owner or a representative of a regulatory authority having jurisdiction determines abatement conditions/activities are not being performed within the requirements of this specification, the AAC’s approved Asbestos Hazard Abatement Plan, regulatory requirements, or that an imminent hazard exists to human health or the environment. Work stoppage will continue until conditions have been corrected to the satisfaction of the Owner or the representative of a regulatory authority having jurisdiction. Standby time and costs for corrective actions will be borne by the AAC or GC, including any applicable time or expense incurred by any of the personnel categories stated in the beginning of this paragraph, as a result of the Stop Asbestos Removal Order. The occurrence of any of the following events shall be reported immediately by the AAC’s Competent Person to the Owner and GC using the most expeditious means (e.g., verbal or telephonic), followed up with written notification to the

Owner as soon as practicable. The AAC and GC must immediately stop asbestos removal/disturbance activities and initiate fiber reduction activities if:

a. Airborne PCM analysis results outside of the asbestos regulated work area exceeds 0.01 fibers per cubic centimeter or background whichever is higher.
b. Breach or break in regulated area containment barrier(s).
c. Pressure within a Negative Pressure Enclosure is not maintained at or below -0.02 inch WCG.
d. Serious injury/death at the site.
e. Fire/safety emergency at the site.
f. Respiratory protection system failure.
g. Power failure or loss or inadequate use of wetting agent.
h. Any visible emissions observed outside the regulated area.
i. Failure to follow project specification requirements.

H. Protection of Existing Work to Remain

1. The AAC and GC must not damage or cause contamination to existing finishes or other existing elements or areas scheduled to remain at the site. Where such elements or areas are damaged or contaminated as verified by the Owner using visual inspection and/or sample analysis, the AAC and GC must stop work and restore those elements or areas to their original undamaged and uncontaminated condition at no additional cost to the Owner. Once the elements or areas have been restored to the satisfaction of the Owner, the work may proceed.

I. Monitoring, Inspections, Sampling, and Testing

1. All sampling required by this section must be performed by qualified persons meeting the minimum requirements of this section.

2. The CPIH is responsible for conducting all non-clearance monitoring, inspections, sampling, and testing required by this section.

3. All final visual inspections and clearance air monitoring required by this section must be performed by the IIHT.

4. All costs related to the monitoring, inspections, sampling, and testing required by this section are to be borne by the AAC and/or GC.

5. All costs related to additional monitoring, inspections, sampling, and testing exceeding the minimum requirements of this section, including those costs for any failed final visual inspections or clearance air monitoring, shall come at no additional cost to the Owner.

6. The Owner or the representative of a regulatory authority having jurisdiction may observe any monitoring, inspections, sampling, and testing performed under this contract at any time or location at their discretion.

7. The Owner or the representative of a regulatory authority having jurisdiction may perform additional monitoring, inspections, sampling, and testing at any time or location at their discretion.

J. Onsite Documentation

1. The AAC and GC must ensure employees have access to complete copies of the contract documents, the submittal items and other elements required by this section, and to all

applicable standards, regulations, codes, and other documents. Electronic format is acceptable except where the contract documents, the submittal items and other elements required by this section, or applicable standards, regulations, codes, or other documents specifically require physical copies to be maintained. Access must be made available at the jobsite at no cost to the employee during normal working hours or at all times work covered by this section is being performed.

1.8. REQUIREMENTS

A. Description of Work

1. The following table lists the known and assumed asbestos-containing materials at this site. The asbestos-containing materials that are located within the Main Work Areas under this contract that are anticipated to be disturbed by the Major Elements of the asbestos work being performed are designated by the Disturbance Code “Y”. The asbestos-containing materials that may be located inside of the Main Work Areas and/or outside of the Main Work Areas that may require disturbance as necessary to accommodate the overall scope of work and related Auxiliary Work under this contract are designated by the Disturbance Code “M". All remaining asbestos-containing materials are not anticipated to require disturbance to complete any element of work under this contract are designated by the Disturbance Code “N”.

ASBESTOS			
MATERIAL DESCRIPTION	Disturbance Code	*Confirmed = C *Assumed = A *Not Present = None *No Asbestos Detected = NAD *Contains Less Than One Percent Asbestos (≤1%) *Non-Friable Organically Bound Material Assumed to Contain Greater Than One Percent Asbestos = NOB *Presence of material in the era is unknown = -	
		1969	1995
Debris and remnants from the former built-up roof materials	Y	C	None
Intact and concealed multi-ply built-up roof materials	Y	C	None
Asphaltic roof mastics and tars	Y	C	A
Flange gaskets	N	A	A
Valve packings	N	A	A
9” x 9” vinyl asbestos tile	N	C	None
12” x 12” vinyl asbestos tile	N	A	-
Grey roof sealant/putty at metal roof deck panels	Y	C	None
Joint compound on gypsum board systems (walls, ceilings, soffits, etc.)	Y	C	None
Mastic between layers of gypsum board	Y	A	-
12” x 12” glued-on ceiling tiles	Y	C	None

ASBESTOS			
MATERIAL DESCRIPTION	Disturbance Code	*Confirmed = C *Assumed = A *Not Present = None *No Asbestos Detected = NAD *Contains Less Than One Percent Asbestos (≤1%) *Non-Friable Organically Bound Material Assumed to Contain Greater Than One Percent Asbestos = NOB *Presence of material in the era is unknown = -	
		1969	1995
Materials used to adhere “gypsum studs” to sound deadening board or other materials	M	C	None
Dark brown mastic used to adhere lay-in ceiling grid perimeter “L” channels to substrates	N	C	None
Mastics, sealants, and putties used on various HVAC system components	Y	A	None
Cement asbestos board wall panels	N	C	None
Cement asbestos board wainscots	N	C	None
Cement asbestos board infill panels at exterior windows	N	C	None
Cement asbestos board exterior soffit and fascia panels	Y (AA #3 ONLY)	C	None
Black flooring mastic	N	C	-
Tarry lining on fan housings inside of air handling equipment	N	C	-
Black undercoating on the bottom of stainless steel sinks	N	C	-
Other colors of undercoatings on the bottom of stainless steel sinks	N	A	A
High temperature wiring insulation inside of older incandescent light fixtures	N	C	None
Tarry lining of clock-speaker box housings	N	A	A
Tarry dampproofing on below grade foundation walls	N	A	A
Sheet vinyl	N	A	-
“Hard fitting” insulation on pipe fittings, valves, hangars, roof drain bowls, etc.	N	C	None
Heat shields in older incandescent light fixtures	N	C	None
Insulating materials inside of doors	N	C	A
Gaskets, sealants, and insulating materials inside of the boilers	N	A	A
Hard brittle/crispy brown-orange “puck” mastic used to adhere smooth-faced hardwood paneling to underlying rigid green foam insulation	N	≤1%	None
Hard brittle/crispy dark grey “puck” mastic used to adhere rigid green foam insulation to underlying precast concrete wall panel substrate	N	≤1%	None

2. The work includes all related submittals, monitoring, inspections, sampling, testing, removal, disturbance, transportation, disposal, recordkeeping, documentation, and other elements as specified herein.

1.9. LISTING OF REQUIRED SUBMITTALS

A. Preconstruction Submittals

1. Asbestos Hazard Abatement Plan (AHAP).

2. Employee training documentation.

3. Competent Person documentation.

4. Affidavit of Medical Surveillance, Respiratory Protection, and Training Accreditation.

5. License and insurance for the AAC.

6. CPIH and IIHT documentation.

7. Testing laboratory documentation.

8. Documentation of notifications.

9. Waste transporter documentation.

10. Waste disposal site documentation.

11. Preconstruction meeting minutes and sign in sheet (to be submitted after initial approval of preconstruction submittals but prior to the start of work).

12. Pre-work activities (to be submitted after initial approval of preconstruction submittals but prior to the start of work).

B. Periodic Submittals

1. Sampling results.

2. Project logs.

3. Updates to any of the preconstruction submittals.

C. Closeout Submittals

1. Waste transport records.

2. Disposal site receipts.

3. Updates to any previously submitted submittals.

1.10. DETAILS OF REQUIRED PRECONSTRUCTION SUBMITTALS

A. Asbestos Hazard Abatement Plan (AHAP)

1. The Asbestos Hazard Abatement Plan (AHAP) must not be combined with other hazard abatement plans, and must be prepared, signed, and sealed by a State-accredited EPA Project Designer. Provide shop drawings for each affected area and a table of contents for each submittal item, which follows the sequence of requirements in the contract. The plan, at a minimum, must include the proposed means, methods, materials, equipment, and other procedures to be used by the AAC which must include, but not be limited to, the following elements:
    a. Procedures for notification of other employers and their employees performing work at the site under this contract, building occupants, and other interested parties or as directed by the Owner.
    b. A pre-work sampling plan describing the procedures to be used to identify, sample, and quantify any additional asbestos-containing materials found that will require disturbance.
    c. Procedures used to identify, execute, and document potential pre-cleaning activities.
    d. A detailed plan of the safety precautions such as lockout, tagout, tryout, fall protection, and confined space entry procedures and equipment and work procedures to be used during the removal, disturbance, or demolition of materials containing asbestos.
    e. Procedures to ensure the protection of existing work to remain.
    f. Isolation and protection of existing systems.
    g. Regulated work area setup for each class of asbestos work to be performed.
    h. Personal protective equipment for each class of asbestos work to be performed.
    i. Asbestos removal procedure(s) for each material being removed or disturbed.
    j. Expendable materials to be used for asbestos work such as encapsulants, surfactants, poly sheeting, etc.
    k. Decontamination area setup for each type of regulated work area and/or class of asbestos work to be performed.
    l. Procedures to ensure negative air pressure is maintained within Negative Pressure Enclosures and corrective actions to be taken in the event of equipment failure or other events which may lead to inadequate negative pressure.
    m. Procedures to be used in the event asbestos-containing materials are spilled, leaked, damaged, or otherwise released in a manner resulting in contamination of existing building components.
    n. Procedures for supplying, controlling, treating, and discharging water and wastewater.
    o. Air monitoring for each type of regulated work area and/or class of asbestos work to be performed.
    p. Waste packaging, storage, loadout, decontamination, manifesting, transport, and disposal procedures.
    q. Procedures to follow in the event additional quantities of known asbestos-containing materials are encountered after the start of work.
    r. Procedures to follow in the event materials are encountered after the start of work which have not previously been shown to not contain asbestos.
    s. Current copies of the Project Designer's accreditation.

2. At a minimum, shop drawings must show the following elements:
    a. The locations and extents of each regulated work area.
    b. Locations of critical barriers.
    c. Locations of existing systems within and/or adjacent to the regulated work area boundaries to be isolated during the asbestos abatement activities.
    d. Location of decontamination area(s).
    e. Location(s) of negative pressure exhaust routing.
    f. Location of make-up air entrance(s) into each regulated work area.
    g. Locations of water supplies and wastewater treatment and discharge area(s).
    h. Locations of air monitoring equipment.

i. Location(s) of first aid materials.
j. Location(s) of fire extinguishers.
k. Emergency egress routes.
l. Waste loadout route(s).
m. Location of temporary storage area(s).
n. The location of copies of all applicable codes, standards, regulations, notices, SDSs, air monitoring results, the AAC's approved AHAP, and other pertinent documents.

B. Employee Training

1. All persons involved in asbestos work must have received training required by 29 CFR 1926.1101, 40 CFR 763, 8 AAC 61, and any other applicable state or local regulations.

2. Persons performing, designing, directly supervising, or monitoring asbestos abatement work must have a current State of Alaska Asbestos Abatement Certificate of Fitness in accordance with 8 AAC 61.600.

3. Submit proof of current accreditation for persons who received training under 40 CFR 763 and submit copies of current State of Alaska Asbestos Abatement Certificates of Fitness. Organize certificates by individual worker, not grouped by type of certification.

4. Due to the potential to contact asbestos-containing materials in project areas throughout this site, all personnel performing work at this site are required to have a minimum of "two-hour asbestos awareness training" in accordance with 29 CFR 1926.1101 and 40 CFR 763. Proof of this training must be maintained onsite for the duration of the project but is not required to be submitted by this section. Only personnel who are trained and State-accredited as an EPA Worker or EPA Contractor/Supervisor are permitted to disturb asbestos-containing materials.

5. Additional training related to health, safety, and environmental issues may be required, and it is the responsibility of the AAC, the AAC’s Competent Person, the GC, and the CPIH to identify those additional issues and to recommend training as necessary to ensure compliance with applicable regulations.

C. Competent Person

1. All asbestos work must be performed under the supervision of a Competent Person as defined by 29 CFR 1926.1101 who additionally has documented experience and training including, but not limited to, the administration and supervision of asbestos abatement projects including exposure assessments and monitoring, work practices, abatement methods, protective measures for personnel, setting up and inspecting asbestos abatement work areas, evaluating the integrity of containment barriers, placement and operation of local exhaust systems, ACM generated waste containment and disposal procedures, decontamination unit installation and maintenance requirements, site safety and health requirements, and notification of other employees onsite.

2. The Competent Person must be on-site at all times when asbestos abatement activities are being performed.

3. Certify in writing that the proposed Competent Person meets the minimum requirements of this section and submit evidence to support such certification. Examples of acceptable documentation include, but are not limited to, resumes, training documentation, or descriptions of prior experience supervising or performing asbestos abatement work.

D. Affidavit of Medical Surveillance, Respiratory Protection, and Training Accreditation

1. Provide a written statement certifying that the following records are current and available on request for all persons engaged in asbestos work:
   a. Evidence of training on the contents of 29 CFR 1926.1101, 40 CFR 763, and other related training required by federal, state, or local agencies.
   b. Evidence of training on the contents of the AAC's written Respiratory Protection Program and the requirements of 29 CFR 1910.134 and its appendices.
   c. Documentation of medical evaluations and determinations, respirator fit tests, and associated recordkeeping required by 29 CFR 1926.103 and 29 CFR 1926.1101.

E. AAC License and Insurance

1. Submit a copy of the AAC's license issued by the State of Alaska and a copy of their insurance policy, including exclusions, with a letter from their agent stating in plain language the coverage provided and the fact that asbestos abatement activities are covered by the policy.

F. Contractor's Professional Industrial Hygienist (CPIH); Independent Industrial Hygiene Technician (IIHT)

1. Submit the following information for the Contractor's Professional Industrial Hygienist (CPIH):
   a. The name, address, and telephone number of the CPIH.
   b. Evidence of current training and accreditation as a Building Inspector and Contractor/Supervisor Abatement Worker as described by 40 CFR 763.
   c. Current State of Alaska Asbestos Abatement Certificate of Fitness in accordance with 8 AAC 61.600.
   d. Evidence of successful completion of the National Institute of Occupational Safety and Health (NIOSH) 582 course "Sampling and Evaluating Airborne Asbestos Dust" or equivalent.
   e. If performing onsite analysis of Phase Contrast Microscopy air samples, the CPIH must be currently registered as an Asbestos Analyst and affiliated with a Registered Organization under the American Industrial Hygiene Association (AIHA) Asbestos Analyst Registry (AAR).
   f. Alternatively, onsite analysis of Phase Contrast Microscopy air samples may be permitted if the CPIH participates as an asbestos analyst in their laboratory's Industrial Hygiene Proficiency Analytical Testing (IHPAT) program and evidence showing their satisfactory performance in the last four rounds of the program is submitted.

2. Submit the following information for the Independent Industrial Hygiene Technician (IIHT):
   a. The name, address, and telephone number of the IIHT.
   b. Evidence of current training and accreditation as a Contractor/Supervisor Abatement Worker as described by 40 CFR 763.
   c. Current State of Alaska Asbestos Abatement Certificate of Fitness in accordance with 8 AAC 61.600.
   d. Evidence of training on the contents of ASTM E1368 and 40 CFR 763.
   e. A written statement certifying that the IIHT and IIHT's employer are completely independent of the AAC and have no employee or employer relationship which could constitute a conflict of interest.

G. Testing Laboratory

1. The minimum analytical capabilities required for the asbestos work under this contract include:

a. National Institute of Occupational Safety and Health (NIOSH) Manual of Analytical Methods (NMAM) Method 7400: Asbestos and Other Fibers by Phase Contrast Microscopy.
b. National Institute of Occupational Safety and Health (NIOSH) Manual of Analytical Methods (NMAM) Method 7402: Asbestos by Transmission Electron Microscopy.
c. United States Environmental Protection Agency Method 600, R93-116: Determination of Asbestos in Bulk Building Materials by Polarized Light Microscopy.
d. United States Environmental Protection Agency “Interim Transmission Electron Microscopy Analytical Methods-Mandatory and Non-Mandatory-and Mandatory Section to Determine Completion of Response Actions” as found in 40 CFR 763, Subpart E, Appendix A.

2. Submit the following information for each testing laboratory:
   a. The name, address, and telephone number of the testing laboratory.
   b. The testing laboratory’s current American Industrial Hygiene Association Laboratory Accreditation Programs (AIHA LAP) certificate of accreditation; scope of accreditation; and the most recent Proficiency Testing Performance Report for the Industrial Hygiene Proficiency Analytical Testing (IHPAT) program showing the testing laboratory as “Proficient” for the “Asbestos Analyte Class” in the “Overall Performance Summary”.
   c. A listing of the testing laboratory’s microscopists showing evidence of successful completion of the National Institute of Occupational Safety and Health (NIOSH) 582 course "Sampling and Evaluating Airborne Asbestos Dust" or equivalent; participation in and satisfactory performance under the IHPAT program; and Asbestos Analyst Testing (AAT) Performance Results Report for AAR participants.
   d. The testing laboratory’s current certificate of accreditation and scope of accreditation issued under the National Institute of Standards and Technology (NIST) National Voluntary Laboratory Accreditation Program (NVLAP) for analysis of asbestos in bulk samples and for analysis of asbestos by Transmission Electron Microscopy in accordance with 40 CFR 763, Subpart E, Appendix A.
   e. The testing laboratory must be independent of the asbestos contractor and must have no employee or employer relationship which could constitute a conflict of interest.

H. Notifications

1. Submit copies of notifications to the Alaska Department of Labor required by 8 AAC 61.620 showing approval by the department.

2. Submit copies of notifications to the regional EPA authority required by 40 CFR 61 Subpart M. Note this may include more than one notification and may include trades other than the Asbestos Abatement Contractor.

I. Waste Transporter

1. Submit written evidence that the transporter is approved to transport asbestos waste in accordance with the requirements of 49 CFR 171, 49 CFR 172, and 49 CFR 173 as well as and all other state and local regulatory agency requirements.

J. Waste Disposal Site

1. Submit written evidence that the landfill is approved for asbestos disposal by the regional EPA authority and local regulatory agencies along with a certification that the Contractor has consulted with the proposed landfill to determine any specific requirements which may

be more stringent than those found within this specification, including if pre-authorization is required.

2. If the proposed landfill requires pre-authorization to dispose of asbestos wastes, submit copies of those authorizations as evidence of compliance with the landfill's requirements.

1.11. DETAILS OF REQUIRED PERIODIC SUBMITTALS

A. Sampling Results:

1. Submit the flowing information for all sampling events, regardless of the type of sampling:
   a. The printed name and signature of the individual who conducted the sampling and their certification names, numbers, and expiration date relevant to the type of sampling performed.
   b. The date the samples were collected.
   c. The requested analytical method.
   d. The sample prefixes, numbers, descriptions, and other unique identifying information.
   e. Field logs associated with the sampling.
   f. Drawings showing the locations of all sampling locations.
   g. Chain of custody documentation for the samples.
   h. A finalized report from the testing laboratory showing the name and location of the testing laboratory, the dates of analysis, the name of the analysts, the analytical method used, and the results of the analysis for all samples. The finalized report must be signed by the analyst.

2. Submit the flowing additional information for all air sampling events, regardless of the type of air sampling:
   a. Purpose/type of air sample (e.g. personnel, inside or outside work area, baseline, clearance, etc.).
   b. For personnel monitoring, the name of the person being monitored, their work activities, and the type of PPE being worn.
   c. The type of sampling cassette or media used.
   d. The locations of samples and activities being performed during the sampling period.
   e. Sampling pump manufacturer, model number, and serial number.
   f. Beginning flow rate, end flow rate, and average flow rate (L/min).
   g. Equipment and equipment identifier (serial number, etc.) used to calibrate flow rates.
   h. Sample period start time, stop time, and elapsed time (in minutes).
   i. Total air volume sampled (liters).

3. Submit the flowing additional information for all clearance air sampling events:
   a. Signed and completed final visual inspection forms.

4. Documentation for all sampling events must be submitted to the Owner within 24 hours of receiving the finalized laboratory results.

B. Work area inspections and clearances:

1. Documentation of final visual inspections must:
   a. Include the time and date of the inspection.
   b. The name, signature, and the State of Alaska Asbestos Abatement Certificate of Fitness number and expiration date of the IIHT conducting the inspection.
   c. The IIHT's client which authorized the inspection.
   d. The name of the GC, the AAC, and the AAC's Competent Person.
   e. A written description of the location the inspection is being performed.

f. A sketch or drawing of the location the inspection is being performed.
g. Indicate whether the work area was satisfactorily cleaned or indicate that the work area was not satisfactorily cleaned.
h. If the work area was satisfactorily cleaned, include a statement that the work area is ready for clearance air monitoring.
i. If the work area was not satisfactorily cleaned, indicate the deficiencies noted and the recommended corrective actions to be taken.
j. If encapsulants are used, and if those encapsulants were tinted, indicate the color which was used to tint the encapsulant and/or what color the encapsulant appears after drying.
k. Be uniquely labeled or titled so that it can be referenced by other documentation.

2. Clearance air monitoring documentation must:
   a. Indicate the unique label or title of the satisfactory final visual inspection for the work area.
   b. Indicate whether encapsulant was used, and if so, indicate whether the encapsulant has dried to the touch.
   c. Include a statement that the clearance air samples were collected using aggressive means.
   d. Include all other sampling documentation required by this section.

3. Documentation for all work area inspections and clearance events must be submitted to the Owner within 24 hours of receiving the finalized laboratory results.

C. Project Logs:

1. Submit all project logs no later than 24 hours after the end of shift.

2. The AAC's written daily log must include:
   a. The date and time the work took place.
   b. The name and signature of the Competent Person.
   c. The name of the CPIH and a description of the type(s) of sampling and inspections performed by the CPIH.
   d. A description of the work being performed.
   e. A sketch or drawing showing the location of the work being performed.
   f. The types and quantities of asbestos-containing materials removed.

3. Regulated area sign-in sheets must include:
   a. The date and time the work took place.
   b. The name and signature of the Competent Person.
   c. A description of where the work is being performed, and if more than one regulated area is present, which regulated area the sign-in sheet applies to.
   d. The name and signature of each person entering and exiting the regulated work area.
   e. The State of Alaska Asbestos Abatement Certificate of Fitness number for each person entering and exiting the regulated work area.

4. Pressure differential recordings for Negative Pressure Enclosures.

D. Submit updates to the preconstruction submittals generated during the work.

1.12. DETAILS OF REQUIRED CLOSEOUT SUBMITTALS

A. Completed waste transport records must include:

1. All information described in 40 CFR 61.150(d).

2. A unique identifying number which can be traced to a disposal site receipt.

B. Disposal site receipts must include:

1. The name, address, and telephone number of the disposal site.

2. The date and time the asbestos wastes were received by the disposal site operator.

3. The name and signature of the disposal site operator's personnel who received the asbestos wastes.

4. A unique identifying number which can be traced to a waste shipment record.

C. In addition to these submittals, the closeout submittals shall include all updates to previously submitted information as necessary to ensure the documentation requirements of this section are fulfilled.

1.13. PERFORMANCE REQUIREMENTS FOR SUBMITTALS

A. All types of submittals must be submitted as a "submittal package" with all required documentation for the type of submittal, must be reasonably organized, and must not contain duplicate information or other information not required by this section. Piecemeal submittals, incomplete submittals, disorganized submittals, or submittals containing duplicative or unnecessary information will be rejected without review and returned to the AAC and/or GC for revision.

B. The AAC and GC must provide the initial Pre-Construction Submittal package required by this section to the Owner no less than 14 days prior to the planned start of work.

C. Periodic Submittals must be provided to the Owner within the timeframes specified for each submittal item. Where no timeframe is provided, the Periodic Submittals must be provided at least weekly.

D. The AAC and GC must provide the initial Closeout Submittal package required by this section to the Owner no later than 14 days after demobilization from the site by the AAC.

E. The performance requirements for submittals apply to each construction season and phase separately.

F. The Owner will provide written acceptance or rejection of all submittals no later than 10 days after receiving the submittals.

G. Failure to deliver submittals in accordance with these performance requirements and/or failure to submit any documentation required by this section may result in the withholding of payment until such time a resolution has been reached to the satisfaction of the Owner.

PART 2 – PRODUCTS

2.1. GENERAL

A. The AAC and GC must provide and maintain a sufficient quantity of materials and equipment required to complete the work of the project. This may include, but is not limited to, HEPA vacuums, scrapers, sprayers, nylon brushes, brooms, disposable mops, rags, sponges, staple guns, shovels, ladders and scaffolding of suitable height and length, fall protection devices, water hoses, airless spray equipment, and any other tools, materials or equipment required to conduct the asbestos work.

B. All products used during the work must be used in strict accordance with the manufacturer's instructions.

C. Store all materials subject to damage off the ground, away from wet or damp surfaces and under cover sufficient enough to prevent damage or contamination.

D. Flammable and combustible materials must not be stored inside of any structure, and if stored elsewhere onsite, must be stored in a container specifically designed for the storage of such materials.

E. Provide Ground-Fault Circuit Interrupters (GFCI) for all electrical equipment.

F. All electrical-related work must be performed by a licensed electrician.

2.2. AIR MONITORING EQUIPMENT

A. The CPIH must provide and approve air monitoring equipment. The equipment must include, but must not be limited to:

1. High-volume sampling pumps that can be calibrated and operated at a constant airflow up to 16 liters per minute.

2. Low-volume, battery powered, body-attachable, portable personal pumps that can be calibrated to a constant airflow of 0.5 to 3.5 liters per minute, and a self-contained rechargeable power pack capable of sustaining the calibrated flow rate for a minimum of 8 hours. The pumps must also be equipped with an automatic flow control unit which must maintain a constant flow, even as filter resistance increases due to accumulation of fiber and debris on the filter surface.

3. Commercial grade air sampling cassettes and labels designed for use with the type of air monitoring being performed.

4. An air flow calibrator traceable to an NIST primary standard.

5. Tubing designed for use in occupational air monitoring applications.

6. Stands, tape, templates, wipes, bags, shipping containers, chain of custody documents, and all other equipment necessary to the type of sampling being performed.

2.3. BACKUP ELECTRICAL SOURCES

A. Provide at least one backup electrical source, such as a standby or backup generator, independent of the building’s electrical systems and any other primary electrical systems established by the GC, which has sufficient capacity and rating to supply the maximum expected electrical demand of all electrical devices required to run continuously during the abatement work, including, but not limited to negative air machines, pressure differential monitoring devices, and other critical systems.

2.4. CHEMICALS

A. Maintain Safety Data Sheets (SDS) at the jobsite for all hazardous chemicals under OSHA 29 CFR 1926.59 - Hazard Communication and 8 AAC 61.1110 - Additional Hazard Communication Standards.

B. Mastic removing solvent must be compatible with replacement materials, must be nonflammable, and must not contain methylene chloride, glycol ether, or halogenated hydrocarbons. Solvents used onsite must have a flash point greater than 140 degrees F.

C. Chlorinated compounds shall not be used with any spray adhesive, mastic remover or other product.

D. Water used for asbestos abatement must be amended using wetting agents or surfactants specifically designed for such use.

E. All types of encapsulant (bridging, penetrating, lock-down, high-temperature, removal, etc.) must be specifically designed for use in asbestos encapsulation applications, non-flammable, non-combustible, non-toxic, and must be compatible with all replacement products.

2.5. DECONTAMINATION AREA

A. Provide decontamination areas in accordance with 29 CFR 1926.1101(j).

2.6. DISPOSAL CONTAINERS

A. All disposal containers for asbestos wastes must:

1. Be leak-tight.

2. Use a minimum of 6-mil polyethylene.

3. Be labeled in accordance with 29 CFR 1926.1101(k)(8); 40 CFR 61.149(d)(1) and 40 CFR 61.149(e)(1); 40 CFR 61.150(a)(1); 40 CFR Appendix D to Subpart E of Part 763; and 49 CFR 172.101.

4. Be weatherproof and must be preprinted on the disposal container or affixed directly to the disposal container.

5. Meet any additional requirements of the disposal site operator.

2.7. DUCT TAPE

A. Use commercial grade duct tape which is compatible with existing substrates and materials being used; capable of withstanding the forces encountered during the work, such as for air movement, the weight of water, equipment, personnel, and materials, from punctures, and other expected forces; and that is capable of maintaining bonding strength in wet or dry conditions throughout the temperature extremes expected to be encountered during the work.

2.8. GLOVEBAGS AND GLOVEBOXES

A. All glovebags must meet or exceed the following minimum specifications:

1. Must not be larger than 60” x 60”.

2. Must have glove-like appendages through which materials and tools may be handled.

3. Must be a minimum of 6-mil thick.

4. Must be seamless at the bottom.

5. Must be used without modification.

B. All gloveboxes must meet or exceed the following minimum specifications:

1. Must have rigid sides and made from metal or other material which can withstand the weight of the materials, tools, and water used during removal.

2. Must use a minimum of 6-mil thick polyethylene sheeting.

3. Must have a negative pressure generator capable of maintaining negative pressure in the system.

4. Must have an air filtration unit attached to the glovebox.

5. Must be fitted with gloved apertures.

6. Must have an aperture at the base of the box of adequate size to serve as a bagging outlet for waste asbestos and water.

2.9. HEPA FILTERS

A. Use only HEPA filters certified as capable of capturing particulates of 0.3 microns with 99.97% efficiency when tested in accordance with UL 586, IEST-RP-series, or MIL-STD-282. HEPA filters must be labeled with the certifying organization.

B. All equipment using HEPA filters must be designed so that all the air drawn into the equipment is expelled through one or more HEPA filters with none of the air leaking past any portion of the equipment prior to passing through the HEPA filters.

2.10. LABELS

A. Use warning labels which comply with 29 CFR 1926.200; 29 CFR 1926.1101(k)(8); 40 CFR 763.95; 49 CFR 172.101; and ANSI Z535 series standards.

2.11. LOCAL EXHAUST VENTILATION

A. Use HEPA-filtered local exhaust ventilation meeting or exceeding the performance requirements of ASSP Z9.2.

2.12. NEGATIVE AIR MACHINES

A. Use HEPA-filtered negative air machines which are capable of meeting or exceeding the performance requirements for Negative Pressure Enclosure in 29 CFR 1926.1101(g)(5)(i).

2.13. PERSONAL PROTECTIVE EQUIPMENT (PPE)

A. General

1. Provide and maintain a sufficient quantity of Personal Protective Equipment (PPE) designed to protect the ears, eyes, face, head, body, lungs, and extremities to all employees engaged in asbestos removal work in accordance with the requirements of 29 CFR 1926.28, 29 CFR 1926.1101, 29 CFR 1926 Subpart E, and other sections of 29 CFR Part 1926 as applicable.

2. Required PPE for persons engaged in asbestos removal work is anticipated to include, but not be limited to, respiratory protective devices, protective clothing, gloves, protective footwear, eye and face protections, hearing protection, fall protection, protective shields, and barriers. Additional PPE must be provided to persons engaged in asbestos abatement work as necessary to protect those employees due to situations such as: other conditions which may be present at the site, conditions caused as a result of the AAC's choice of means and methods to complete the work, or due to hazards which are incidental to the asbestos work. The AAC must perform an assessment of the potential hazards present for each work task being performed and must provide PPE as necessary to protect employees and others from those hazards. The assessments must be documented in writing and maintained at the work site. The elements of the assessment may include, but are not limited to, those elements described in Appendix B to 29 CFR 1910.120; Appendix B to Subpart I of 29 CFR 1910; OSHA Publication 3071 for Job Hazard Analysis; or in USACE EM 385-1-1.

3. PPE must be of commercial quality, bear the manufacturer's name, and certified to meet or exceed any performance and labeling requirements specified by applicable regulations. Examples which demonstrate compliance with this requirement include, but are not limited to:
   a. Respirators which are approved for use by NIOSH in accordance with 42 CFR 84 and meet the requirements of ANSI/ISEA Z88 series standards.
   b. Protective ensembles which are certified by NFPA 1990.
   c. Protective clothing meeting the requirements of ANSI/ISEA 101.
   d. Foot protection meeting the requirements of ANSI Z41.1.
   e. Hand protection meeting the requirements of ANSI/ISEA 105.
   f. Eye and face protection meeting the requirements of ANSI/ISEA Z87.1.
   g. Head protection meeting the requirements of ANSI/ISEA Z89.1.
   h. Protective equipment meeting the requirements of ISO 13.340

B. Provide the Owner or representative of an authority having jurisdiction with at least two complete sets of personal protective equipment as required for entry into and inspection of all areas of the regulated work area.

C. Select and use respiratory protective devices in accordance with 1926.1101(h)(3).

D. Breathing air quality and use must meet the requirements of 29 CFR 1910.134(i).

2.14. POLYETHYLENE SHEETING

A. All polyethylene sheeting used for asbestos-related purposes including, but not limited to, the containment of regulated work areas, construction of decontamination areas, isolation of HVAC systems, as a drop cloth, glovebags, disposal containers and liners, etc. must meet the following minimum requirements:

1. Be 6-mil thick or greater.

2. Must be impermeable.

3. Meet the performance requirements of ASTM E84, ASTM D4397 or ASTM D4801, and NFPA 701.

2.15. PRESSURE DIFFERENTIAL MONITORING DEVICE

A. Provide a pressure differential monitoring device for asbestos work conducted in Negative Pressure Enclosures. The device must:

1. Be capable of continuous operation.

2. Be capable of measuring pressure differential in a minimum range of +0.25” to -0.25” of water column.

3. Have a continuous data logging feature which can store measurements in electronic format, record measurements on physical printouts, or both.

4. Be capable of setting alarm setpoints.

5. Have audible and visual alarm or be able to signal these alarms.

2.16. SANITATION SYSTEMS

A. Provide potable water; nonpotable water; toilets; food handling; temporary sleeping quarters; washing facilities; eating and drinking areas; vermin control; and change rooms in accordance with 29 CFR 1926.51 and 29 CFR 1926.1101(j).

2.17. VACUUMS

A. Use vacuums which have been designed with a HEPA filter as the last filtration stage. The vacuum cleaner must be designed so that all the air drawn into the machine is expelled through the HEPA filter with none of the air leaking past it. HEPA vacuums must be operated and maintained in accordance with the manufacturer's instructions.

2.18. WARNING SIGNS AND TAPE

A. Use warning signs and tape which comply with 29 CFR 1926.200; 29 CFR 1926.1101(k)(7); and ANSI Z535 series standards.

2.19. WATER FILTRATION EQUIPMENT

A. Provide water filtration equipment specifically designed to treat wastewater from asbestos abatement activities to a minimum treatment standard of 7,000,000 asbestos fibers per liter. The equipment must have a minimum of two filtration stages with one 20 micron and one 5 micron filter.

PART 3 – EXECUTION

3.1. GENERAL

A. No work covered by this section may commence until all required Preconstruction Submittals have been approved, a pre-construction meeting held, the pre-work inspections have been completed, and a written authorization to proceed with the work is provided by the Owner.

B. In addition to the requirements of this section, the AAC and GC must:

1. Notify other employers of the nature of the asbestos work, the existence of and requirements pertaining to regulated areas, and the measures taken to ensure that employees of such other employers are not exposed to asbestos and must comply with all other requirements for multi-employer worksites in accordance with 29 CFR 1926.1101(d).

2. Establish, demarcate, and control access to regulated areas; ensure the proper use of respiratory protection within regulated areas; ensure that employees do not eat, drink, smoke, chew tobacco or gum, or apply cosmetics in the regulated area; and must ensure a Competent Person supervises all work performed within regulated areas in accordance with 29 CFR 1926.1101(e) as applicable to the class of asbestos work being performed.

3. Perform all exposure assessments and monitoring in accordance with 29 CFR 1926.1101(f), except where this section designates those responsibilities, or portions of those responsibilities, to the CPIH or the IIHT.

4. Comply with the minimum methods of compliance in accordance with 29 CFR 1926.1101(g) as applicable to the class of asbestos work being performed.

5. Provide respiratory protection to employees; implement and maintain a written Respiratory Protection Program; and select respiratory protection in accordance with 29 CFR 1926.1101(h).

6. Comply with the additional respiratory protection standards of 8 AAC 61.1030.

7. Provide protective clothing in accordance with 29 CFR 1926.1101(i).

8. Provide hygiene facilities and ensure the proper use of those facilities in accordance with 29 CFR 1926.1101(j).

9. Communicate information on asbestos hazards in construction in accordance with 29 CFR 1926.1101(k).

10. Comply with the housekeeping requirements in accordance with 29 CFR 1926.1101(l).

11. Provide medical surveillance to employees in accordance with 29 CFR 1926.1101(m).

12. Comply with the recordkeeping requirements in accordance with 29 CFR 1926.1101(n); 40 CFR 61 Subpart M; 40 CFR 763; 49 CFR 172 Subpart C; and any additional requirements of this section.

13. Designate a Competent Person in accordance with 29 CFR 1926.1101(o).

14. Use the work practices and engineering controls found in Appendix F to 29 CFR 1926.1101 for all work requiring the use of a Negative Pressure Enclosure.

15. Comply with the notification requirements and asbestos emission control procedures in accordance with 40 CFR 61.145.

16. Comply with waste disposal requirements in accordance with 40 CFR 61.150 and 18 AAC 60.450.

17. Comply with all applicable requirements of 40 CFR 763 Subpart E and its appendices.

18. Comply with applicable codes and requirements related to fire protection and prevention, emergency egress, first aid, and other similarly related elements.

3.2. PRE-WORK ACTIVITIES

A. The Contractor must perform the following pre-work inspections and preparations prior to starting any work covered by this section:

1. With the assistance of the Owner, determine if there are any special or unique conditions within the work area, such as controls or equipment which may require access during the abatement by non-abatement personnel, that may necessitate modification or revision of the Contractor's approved Asbestos Hazard Abatement Plan.

2. Determine the extents of each individual work area and the work to be performed within those areas, and confirm that the conditions, work areas, and work to take place is in accordance with the Contractor’s approved Asbestos Hazard Abatement Plan. If materials are identified that may be contacted or disturbed by the work that are not classified as asbestos-containing or non-asbestos-containing in the Hazardous Materials Assessment, the CPIH must collect bulk samples of those materials in accordance with this section.

3. Conduct a space-by-space inspection with the Owner and prepare a written inventory of all existing damage in those spaces where asbestos abatement will occur. Still or video photography may be used to supplement the written inventory of existing damage. Documentation must be signed and certified as accurate by both parties.

4. If the AHAP or other submittal elements required by this section require modification or revision due to discoveries made during the pre-work inspections and preparations, the Contractor must submit those modifications and/or revisions to the Owner for review and approval prior to starting work.

3.3. PRE-WORK NOTIFICATIONS AND AUTHORIZATIONS

A. The Contractor must submit a “Notification of Demolition and Renovation” to the EPA Region X NESHAP coordinator at least 10 working days prior to starting the work if required by 40 CFR 61.145. The notification must be updated periodically if the amount of asbestos affected changes by at least 20 percent, if the start or end dates change, or as otherwise required by 40 CFR 61.145(b).

B. The Contractor must submit notification to, and receive approval from, the Alaska Department of Labor (DOL) in accordance with 8 AAC 61.620(b).

C. If required by the disposal site, obtain written authorization to dispose of asbestos wastes.

3.4. PRE-CLEANING AND WORK AREA PREPARATION ACTIVITIES

A. There is no requirement to remove all pre-existing asbestos-containing dusts or debris from the site unless noted otherwise and elsewhere in this section or the contract documents, or if it is necessary to complete the work in accordance with this section, or because the AAC or GC determines it to be a more cost-effective means of completing the work.

B. Moveable objects remaining in the work area which the Owner chooses to leave in place must be removed prior to establishing the regulated area unless those objects are contaminated by asbestos. Asbestos-contaminated moveable objects which are cleanable and can be decontaminated using Class IV work methods in accordance with 29 CFR 1926.1101 may be

cleaned and removed prior to establishing the regulated area. Noncleanable moveable objects or objects which cannot be cleaned using Class IV work methods must remain in the regulated area and be decontaminated or disposed of after the regulated area has been established.

C. Non-moveable objects, fixed objects, and remaining exposed surfaces in the work area which are cleanable and can be decontaminated using Class IV work methods in accordance with 29 CFR 1926.1101 must be cleaned using a HEPA filtered vacuum and/or wet cleaning methods prior to establishing the work area. Non-moveable objects, fixed objects, or remaining surfaces which cannot be cleaned using Class IV work methods must be decontaminated or removed and disposed of after the regulated area has been established.

D. Objects and surfaces remaining in the work area after the precleaning activities have been completed must be covered and protected using a minimum of 2 layers of polyethylene sheeting and sealed using duct tape, spray adhesive, or other approved method.

3.5. SPECIFIC REQUIREMENTS OF THIS SECTION

A. All work covered by this section that is performed indoors must be performed within a regulated area using critical barriers as a minimum.

1. Exceptions to this requirement:
   a. Class IV asbestos work.
   b. Intact removal of asbestos-containing material.
   c. Buildings scheduled for complete demolition which will not be reoccupied after abatement and prior to demolition.
   d. Work classified as small-scale short-duration.
   e. Isolated glovebag or glovebox work.

B. Work which includes the removal or disturbance of asbestos-containing roof coatings, cements, and mastics is required by this section to be performed as a Class II asbestos operation.

C. Reliance on OSHA's "Flooring Settlement Agreement" as justification to reduce the minimum work area protections required by this section is prohibited.

D. The following materials are classified by this section as a Regulated Asbestos-Containing Material:

1. Asbestos-containing sheet vinyl and its associated mastics and leveling compounds, or any materials contaminated by these items.

2. Loose fill vermiculite insulation.

E. Negative air machines and local exhaust ventilation must not use any building HVAC systems as a means of transporting air into or out of the regulated areas; must exhaust to the exterior of the building, no less than 30 feet away from building HVAC intakes, and must be exhausted to an area with the least amount of personnel traffic to the greatest extent practicable.

F. Work conducted adjacent to occupied areas must be obscured from those occupants to the greatest extent practicable.

G. The AAC must document all work covered by this section they perform on a written daily log.

H. All regulated work areas must maintain a sign-in sheet to record all persons entering and exiting the regulated work area.

I. All asbestos-containing wastes removed from the site, including those classified as Category I Non-Friable ACM, Category II Non-Friable ACM, RACM, and materials containing asbestos at a concentration of less than or equal to 1% asbestos must have a waste shipment record and a disposal receipt indicating receipt by the disposal site operator.

J. Where encapsulants are used, and when the area or components where they are used will not be visible to normal building occupants after the completion of construction, the encapsulant must be tinted with a unique color in a manner which does not obscure underlying substrates.

3.6. BULK SAMPLING REQUIREMENTS

A. Any materials requiring bulk sampling by this section must meet the following minimum bulk sampling requirements for each homogeneous area:

1. Surfacing materials:
   a. At least three (3) bulk samples shall be collected from each homogeneous area that is 1,000 square feet or less.
   b. At least five (5) bulk samples shall be collected from each homogeneous area that is greater than 1,000 square feet but less than or equal to 5,000 square feet.
   c. At least seven (7) bulk samples shall be collected from each homogeneous area that is greater than 5,000 square feet.
   d. At least one (1) additional bulk sample for every additional 1,000 square feet of material.

2. Thermal System Insulation (TSI):
   a. At least three (3) bulk samples shall be collected from each homogeneous area of TSI.
   b. At least one (1) bulk sample from each homogeneous area of patched thermal system insulation if the patched section is less than 6 linear or square feet.
   c. In a manner sufficient to determine, which must include at least two (2) bulk samples, from each insulated mechanical system where cement or plaster is used on fittings such as tees, elbows, or valves.
   d. Bulk samples are not required to be collected from any homogeneous area where the accredited inspector has determined that the thermal system insulation is fiberglass, foam glass, rubber, or other non-ACBM.

3. Miscellaneous materials:
   a. At least two (2) bulk samples shall be collected from each homogeneous area that is less than 500 square feet.
   b. At least three (3) bulk samples shall be collected from each homogeneous area that is greater than or equal to 500 square feet but less than 1,000 square feet.
   c. At least five (5) bulk samples shall be collected from each homogeneous area that is greater than 1,000 square feet but less than or equal to 5,000 square feet.
   d. At least seven (7) bulk samples shall be collected from each homogeneous area that is greater than 5,000 square feet.
   e. At least one (1) additional bulk sample for every additional 1,000 square feet of material.

3.7. AIR MONITORING

A. General

1. For all work covered by this section which requires the establishment of a regulated area, air monitoring must be performed.

2. Air monitoring must be performed at all times work covered by this section is being conducted for the duration of the project.

3. Air monitoring must be performed by the CPIH.

4. The CPIH must submit lab blanks and field blanks in accordance with the requirements of the analytical method being used.

5. The quantities and types of air monitoring required by this section are the minimum requirements and apply to each regulated area and each shift separately.

6. A reduction of monitoring may be permitted at the discretion of the Owner upon written request from the CPIH. Modifications to any air monitoring procedures required by this section are prohibited unless the Owner issues a written authorization stating their acceptance of the proposed modifications. No modifications are allowed prior to receiving such authorization.

7. The minimum air monitoring requirements of this section apply to each regulated area and each shift separately.

8. Air monitoring is not required by this section for intact removal of asbestos-containing materials.

9. Air samples collected for analysis by NIOSH 7400 must have a sufficient volume of air drawn through the filter media to establish a minimum level of detection of less than 0.01 f/cc.

B. Air monitoring for the purpose of establishing background levels of airborne asbestos concentrations by NIOSH 7400 is not required by this section but may be performed at the discretion of the Contractor.

C. Monitoring of personnel:

1. Monitoring of personnel must be performed in accordance with 29 CFR 1926.1101.

D. For all interior work, and for exterior work which cannot be performed using non-aggressive means, air monitoring during the work must include:

1. A minimum of three (3) air samples from within the regulated area boundaries.

2. A minimum of three (3) air samples from areas outside of but adjacent to the regulated area boundaries.

3. One (1) air sample at the entrance to the regulated area.

4. One (1) air sample at the waste loadout area during waste loadout operations.

5. One (1) air sample at the approximate location of HEPA exhaust discharge.

E. For exterior work performed using non-aggressive means, air monitoring during the work must include:

1. A minimum of two (2) air samples from within the regulated area boundaries.

2. A minimum of two (2) air samples from areas outside of but adjacent to the regulated area boundaries.

F. For work classified as small-scale short-duration and where the employer has not completed a Negative Exposure Assessment for the work operation in accordance with 29 CFR 1926.1101(f)(2), air monitoring during the work must include:

1. A minimum of one (1) air sample taken from each of the employee's breathing zone.

2. A minimum of two (2) air samples collected directly adjacent to where the removal work is taking place.

3.8. WORK AREA INSPECTIONS AND CLEARANCES

A. General:

1. All clearance air monitoring and final visual inspections must be performed by the IIHT.

2. Final visual inspections must be performed at the completion of all asbestos removal activities, including for intact removal, exterior removal, work classified as small-scale short-duration, and any other work which disturbs and removes any quantity of asbestos from any location of the site.

3. The final visual inspection must be thorough and performed in accordance with the protocols found in ASTM E1368 and 40 CFR 763.

4. All final visual inspections and clearance air monitoring must be documented in writing.

5. Clearance air monitoring is required for all work conducted inside of regulated areas unless noted otherwise by this section.

6. If the work area requires the use and application of encapsulants of any type, clearance air monitoring may not begin until the applied encapsulant is dry to the touch.

7. All clearance air monitoring must be performed using aggressive methods as described in Appendix A to 40 CFR 763 Subpart E.

8. The IIHT must submit lab blanks and field blanks in accordance with the requirements of the analytical method being used.

9. The quantities and types of air monitoring required by this section are the minimum requirements and apply to each regulated area separately.

10. Onsite analysis of clearance air samples is prohibited.

11. Clearance air monitoring is not required by this section for intact removal of asbestos-containing materials or for exterior asbestos removal activities.

12. If any of the clearance air samples fails clearance criteria, the work area must be recleaned, receive an additional final visual inspection, and clearance air monitoring repeated.

13. All regulated work areas must retain their status as a regulated work area until the Owner provides written notice that the work area may be deregulated.

B. TEM clearance air monitoring:

1. Must be performed in accordance with the United States Environmental Protection Agency “Interim Transmission Electron Microscopy Analytical Methods-Mandatory and Non-Mandatory-and Mandatory Section to Determine Completion of Response Actions” as found in 40 CFR 763, Subpart E, Appendix A.

2. Is required for all Class I asbestos work requiring the removal of greater than 25 linear feet or 10 square feet of asbestos-containing material.

3. Is required for all work requiring the removal of greater than 10 square feet of asbestos-containing resilient floor coverings and their associated mastics and leveling compounds, or for the removal of any materials contaminated by these items.

4. Is required for all other interior work requiring the removal of greater than 160 linear feet or 260 square feet of asbestos-containing material.

5. Must include a minimum of five (5) clearance air samples from within the regulated area boundaries.

6. Each TEM clearance air sample collected must meet the pass/fail criteria in 40 CFR 763.90(i)(4). Averaging of the analytical results to achieve passing criteria is prohibited by this section.

C. PCM clearance air monitoring:

1. Must be performed in accordance with the National Institute of Occupational Safety and Health (NIOSH) Manual of Analytical Methods (NMAM) Method 7400: Asbestos and Other Fibers by Phase Contrast Microscopy.

2. May be performed for all other interior work which is not required to have TEM clearance air monitoring.

3. Must include a minimum of five (5) clearance air samples from within the regulated area boundaries.

4. Each PCM clearance air sample collected must meet the pass/fail criteria in 40 CFR 763.90(i)(5). Reanalysis of failed PCM clearance air samples using NIOSH NMAM TEM Method 7402 for the purposes of determining if passing clearance criteria has been achieved is prohibited by this section.

3.9. POST-WORK ACTIVITIES

A. The AAC must visually inspect areas impacted by their work activities for potential asbestos-containing dust or debris that may have been concealed after all regulated area protections, equipment, supplies, and other objects within their possession have been removed from those

areas. If any asbestos-containing dust or debris is noted, the AAC must promptly clean up the dust or debris and record those actions on their daily report.

B. The GC, AAC, and Owner must perform a final walk-thru of the work areas to inspect for any damage that may have occurred as a result of the AAC's activities at the site.

C. The AAC must submit all documentation required by this section for Owner review and approval.

D. After the AAC has demobilized from the site and all required submittals approved, then the requirements of this section will have been satisfied.

END OF SECTION

REMOVAL AND DISPOSAL OF MISCELLANEOUS HAZARDOUS MATERIALS

PART 1 - GENERAL

1.1. NOTIFICATIONS

A. Notification of Potential Hazards: Asbestos, lead and other potentially hazardous materials are present in the building that may impact the work of all trades. Regulated air contaminants, including asbestos and lead, are also present in settled and concealed dust in and on architectural, structural, mechanical and electrical components or systems throughout the building. All trades shall coordinate with other trades and conduct their work to prevent worker exposure or site contamination. Refer to Specification Divisions 0, 1 and 2 for specific information concerning disturbing, removing and disposing of these materials and the installation of new materials or components. This notification is provided in accordance with EPA and OSHA requirements.

B. Notification of Child Occupied Facility: Portions of this building are classified as a Child Occupied Facility in accordance with 40 CFR 745 and lead-based paints may be present on components to be disturbed in those areas. Personnel performing work in these areas must comply with the requirements of 40 CFR 745, including training, work practices and cleaning of the work area. Refer to Specification Divisions 0, 1 and 2 for specific information concerning disturbing, removing and disposing of lead materials and the installation of new materials or components. This notification is provided in accordance with EPA and OSHA requirements.

1.2. SECTION INCLUDES

A. This section applies to work involving the removal, disturbance, transportation, and disposal of lead-containing materials (including those related to lead-based paint activities as defined and regulated by 40 CFR 745), mercury-containing materials, PCB-containing light ballasts and associated contamination, equipment with ozone depleting substances, items with radioactive components, and heat transfer fluids in building heating and cooling systems.

B. This section does not apply to or address requirements related to any other health, safety, or environmental concerns related to other types of materials or conditions which may be present at this site; other PCB-containing materials or contamination not related to light ballasts; stored materials or other materials which are not installed building materials or components; contractor supplied or produced wastes; or any other wastes not specifically described as included.

1.3. CONTRACT DOCUMENTS AND RELATED REQUIREMENTS

A. Drawings and general provisions of the contract, including general and supplementary conditions and other Division 0, 1, and 2 specifications, apply to the work of this section. The contract documents show or describe the work to be done under the contract including related requirements and conditions impacting the project. Related requirements and conditions include, but are not limited to, applicable codes and regulations, notices and permits, existing site conditions and restrictions on use of the site, security of the site, requirements for partial owner occupancy during the work, coordination with other work and the phasing of the work, among others. In the event the Contractor discovers a conflict in the contract documents and/or requirements, the conflict must be brought to the immediate attention of the Owner for resolution.

Whenever there is a conflict or overlap in the requirements, the most stringent shall apply. Any actions taken by the Contractor without authorization from the Owner shall become the sole risk and responsibility of the Contractor. All costs incurred due to such action are also the responsibility of the Contractor.

1.4. RELATED WORK

A. 02 26 00 – Hazardous Materials Assessment

B. 02 82 33 – Removal and Disposal of Asbestos Containing Materials

1.5. REFERENCE STANDARDS

A. The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

B. All work under this contract shall be done in strict accordance with all applicable federal, state, and local regulations, standards and codes governing miscellaneous hazardous materials removal work, and any other trade work done in conjunction with the project. All applicable codes, regulations, and standards are adopted into this specification and will have the same force and effect as this specification.

C. The most recent edition of any relevant regulation, standard, document, or code shall be in effect. Where conflict among the requirements or with these specifications exists, the most stringent requirement(s) shall be utilized.

D. All related regulations, statutes, public laws, registers, and regulatory guidance are incorporated by reference.

E. Alaska Administrative Code (AAC)

1. 8 AAC 61 Occupational Safety and Health Division

2. 8 AAC 61.1010-1190 Occupational Safety and Health Standards

3. 17 AAC 25 Operations, Wheeled Vehicles

4. 18 AAC 60 Solid Waste Management

5. 18 AAC 62 Hazardous Waste

6. 18 AAC 70 Water Quality Standards

7. 18 AAC 72 Wastewater Treatment and Disposal

8. 18 AAC 75 Oil and Other Hazardous Substances Pollution Control

9. 18 AAC 85 Radiation Protection

F. Alaska Statutes (AS)

1. AS Section 18.60 Safety

2. AS Section 23.05 Department of Labor and Workforce Development

G. American National Standards Institute (ANSI)

1. ANSI Z41.1 Personal Protection - Protective Footwear

2. ANSI Z535 Series Safety Alerting Standards

H. American Society of Safety Professionals (ASSP)

1. ASSP Z9.2 Fundamentals Governing the Design and Operation of Local Exhaust Ventilation Systems

I. ASTM International (ASTM)

1. ASTM C732 Aging Effects of Artificial Weathering on Latex Sealants

2. ASTM D522/D522M Mandrel Bend Test of Attached Organic Coatings

3. ASTM D2794 Standard Test Method for Resistance of Organic Coatings to the Effects of Rapid Deformation (Impact)

4. ASTM D4397 Standard Specification for Polyethylene Sheeting for Construction, Industrial, and Agricultural Applications

5. ASTM D4801 Standard Specification for Polyethylene Sheeting in Thickness of 0.25 mm (0.010 in.) and Greater

6. ASTM E84 Standard Test Method for Surface Burning Characteristics of Building Materials

7. ASTM E96/E96M Standard Test Methods for Water Vapor Transmission of Materials

8. ASTM E119 Standard Test Methods for Fire Tests of Building Construction and Materials

9. ASTM E736/E736M Standard Test Method for Cohesion/Adhesion of Sprayed Fire-Resistive Materials Applied to Structural Members

J. Compressed Gas Association (CGA)

1. CGA G-7 Compressed Air for Human Respiration; 6th Edition

K. Institute of Environmental Sciences and Technology (IEST)

1. IEST-Recommended Practices-Contaminant Control (IEST-RP-CC-xxxx) Series

L. International Air Transport Association (IATA)

1. IATA DGR Dangerous Goods Regulations

M. International Organization for Standardization (ISO)

1. ISO 13.340 Protective Equipment Series Standards

N. International Safety Equipment Association (ISEA)

1. ANSI/ISEA 101 Limited-Use and Disposable Coveralls—Size and Labeling Requirements

2. ANSI/ISEA 105 Hand Protection Classification

3. ANSI/ISEA Z87.1 Occupational and Educational Personal Eye and Face Protection Devices

4. ANSI/ISEA Z88 Series Respiratory Protection Standards

O. National Fire Protection Association (NFPA)

1. NFPA 701 Standard Methods of Fire Tests for Flame Propagation of Textiles and Films

2. NFPA 1990 Standard for Protective Ensembles for Hazardous Materials and CBRN Operations

P. National Institute for Occupational Safety and Health (NIOSH)

1. NIOSH NMAM NIOSH Manual of Analytical Methods

Q. Nuclear Regulatory Commission

1. 10 CFR Chapter I Nuclear Regulatory Commission

2. 10 CFR 20 Standards for Protecting Against Radiation

R. Underwriters Laboratories (UL)

1. UL 586 Standard for Safety High-Efficiency Particulate, Air Filter Units

S. United States Army Corps of Engineers (USACE)

1. Engineer Manual EM 385-1-1 Safety and Health Requirements

T. United States Department of Transportation

1. 49 CFR Subchapter C Hazardous Materials Regulations

2. 49 CFR 107 Hazardous Materials Program Procedures

3. 49 CFR 171 General Information, Regulations, and Definitions

4. 49 CFR 172 Hazardous Materials Table, Special Provisions, Hazardous Materials Communications, Emergency Response Information, and Training Requirements

5. 49 CFR 173 Shippers - General Requirements for Shipments and Packagings

6. 49 CFR 178 Specifications for Packagings

7. 49 CFR 179 Specifications for Tank Cars

U. United States Environmental Protection Agency (EPA)

1. 40 CFR 61 National Emission Standards for Hazardous Air Pollutants

2. 40 CFR 82 Protection of Stratospheric Ozone

3. 40 CFR 124 Procedures for Decision-making

4. 40 CFR Subchapter I Solid Wastes

5. 40 CFR 260 Hazardous Waste Management System: General

6. 40 CFR 261 Identification and Listing of Hazardous Waste

7. 40 CFR 262 Standards Applicable to Generators of Hazardous Waste

8. 40 CFR 263 Standards Applicable to Transporters of Hazardous Waste

9. 40 CFR 264 Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities

10. 40 CFR 265 Interim Status Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities

11. 40 CFR 266 Standards for the Management of Specific Hazardous Wastes and Specific Types of Hazardous Waste Management Facilities

12. 40 CFR 267 Standards for Owners and Operators of Hazardous Waste Facilities Operating Under a Standardized Permit

13. 40 CFR 268 Land Disposal Restrictions

14. 40 CFR 270 EPA Administered Permit Programs: The Hazardous Waste Permit Program

15. 40 CFR 271 Requirements for Authorization of State Hazardous Waste Programs

16. 40 CFR 272 Approved State Hazardous Waste Management Programs

17. 40 CFR 273 Standards for Universal Waste Management

18. 40 CFR 300 National Oil and Hazardous Substances Pollution Contingency Plan

19. 40 CFR 302 Designation, Reportable Quantities, and Notification

20. 40 CFR 745 Lead-Based Paint Poisoning Prevention in Certain Residential Structures

21. 40 CFR 761 Polychlorinated Biphenyls (PCBs) Manufacturing, Processing, Distribution in Commerce, and Use Prohibitions

V. United States Military Standards

1. MIL-STD-282 Filter Units, Protective Clothing, Gas-Mask Components and Related Products: Performance Test Methods

W. United States Occupational Safety and Health Administration (OSHA)

1. 29 CFR 1910.120 Appendix B General Description and Discussion of the Levels of Protection and Protective Gear.

2. 29 CFR 1910 Subpart I Appendix A Nonmandatory Compliance Guidelines for Hazard Assessment and Personal Protective Equipment Selection

3. 29 CFR 1910.134 Respiratory Protection

4. 29 CFR 1926 Safety and Health Regulations for Construction

5. 29 CFR 1926.21 Safety Training and Education

6. 29 CFR 1926.28 Personal Protective Equipment

7. 29 CFR 1926.32 Definitions

8. 29 CFR 1926.51 Sanitation

9. 29 CFR 1926.53 Ionizing Radiation

10. 29 CFR 1926.55 Gases, Vapors, Fumes, Dusts, and Mists

11. 29 CFR 1926.59 Hazard Communication

12. 29 CFR 1926.62 Lead in Construction

13. 29 CFR 1926.65 Hazardous Waste Operations and Emergency Response

14. 29 CFR 1926 Subpart E (Parts 95-107) Personal Protective and Life Saving Equipment

15. 29 CFR 1926.95 Criteria for Personal Protective Equipment

16. 29 CFR 1926.103 Respiratory Protection

17. 29 CFR 1926.200 Accident Prevention Signs and Tags

18. 29 CFR 1926.1101 Asbestos

19. OSHA Publication 3071 Job Hazard Analysis

1.6. DEFINITIONS

A. Definitions used in this section include those used in Divisions 0, 1, and 2; those defined by the Reference Standards listed above; and the following:

B. Auxiliary Work

1. Auxiliary Work is intended to include all work that is not defined as a Major Element by this section. An example of Auxiliary Work includes work such as routing of new mechanical or electrical systems within the Main Work Areas and to areas outside of the Main Work Area(s).

C. Contractor's Professional Industrial Hygienist (CPIH)

1. The Contractor's Professional Industrial Hygienist (CPIH) is responsible for all monitoring, inspections, sampling, and testing which is not work required to be performed by the IIHT. The CPIH may be hired directly by the MHRC.

D. General Contractor (GC)

1. General Contractor (GC) means the entity the Owner has entered into agreement with to serve as the overall authority of the construction-related aspects of the contract.

E. Hazardous Materials

1. As used in this section, hazardous materials means: lead-containing materials, mercury-containing materials, PCB-containing light ballasts and associated contamination, equipment with ozone depleting substances, items with radioactive components, and heat transfer fluids in building heating and cooling systems.

F. Hazardous Materials Assessment (HMA)

1. Hazardous Materials Assessment (HMA) means any reports or other existing information related to asbestos-containing materials or other potentially hazardous materials present at the site which is provided prior to the award of the contract.

G. Main Work Area

1. Main Work Area is intended to include area(s) which have defined boundaries where the majority of work is located.

H. Major Element

1. Major Element is intended to include the elements of work which are located within the Main Work Area(s), whose scope is not subject to variations in means or methods, and can generally be identified solely by graphical representation or notation on the contract drawings.

I. Miscellaneous Hazards Removal Contractor (MHRC)

1. Miscellaneous Hazards Removal Contractor (MHRC) means the GC or other subcontractor(s) responsible for conducting the work required by this section.

J. Independent Industrial Hygiene Technician (IIHT)

1. The Independent Industrial Hygiene Technician IIHT is responsible for conducting all final visual inspections and clearance monitoring required by this section. The IIHT and IIHT’s employer must be completely independent of the MHRC and must have no employee or employer relationship which could constitute a conflict of interest.

K. Refrigerant Recovery Technician (RRT)

1. Refrigerant Recovery Technician (RRT) means the specialty subcontractor responsible for the removal, recovery, and recharging of ODS from equipment located onsite.

L. Transportation and Disposal Coordinator (TDC)

1. Transportation and Disposal Coordinator (TDC) means the person selected by the GC who is responsible for ensuring compliance with all applicable rules and regulations pertaining to the wastes generated by the work covered by this section.

1.7. QUALITY ASSURANCE

A. General

1. Administrative and supervisory personnel shall, at a minimum, consist of the MHRC's Competent Person, the CPIH, and the IIHT. These employees are the GC's representatives responsible for compliance with this section. Non-supervisory personnel must consist of an adequate number of qualified personnel to meet the performance requirements of the project. All personnel must meet required qualifications.

2. Comply with the specific requirements of this contract, and other applicable laws, ordinances, rules, and regulations of federal, state, and local authorities having jurisdiction regarding removing, handling, storing, transporting, and disposal of the miscellaneous hazardous materials covered by this section. Notify the Owner and request resolution of conflicts between regulations and specified requirements before starting work.

B. Responsibilities

1. Owner Responsibilities Prior to Commencement of Work
   a. The Owner will notify occupants adjacent to the work areas of project dates and requirements for relocation, if needed. Arrangements must be made prior to starting work for relocation of desks, files, equipment, and personal possessions if required to complete the work. The Owner will coordinate utilities use, locations, and other conditions of use with the GC.

2. MHRC and GC Responsibility
   a. The MHRC shall assume primary responsibility and liability for compliance with all applicable federal, state, and local regulations related to all aspects of the miscellaneous hazardous materials removal work. The GC shall assume secondary responsibility and liability for their own and their other subcontractor's compliance with all applicable federal, state, and local regulations as it relates to potential hazards associated with the miscellaneous hazardous materials present in the work areas. The MHRC and GC are responsible for providing and maintaining required documentation including, but not limited to, training, accreditations, medical exams, medical records, personal protective equipment (PPE), respiratory protection, and respirator fit testing, as required by applicable federal, state, and local regulations and this section. The MHRC and GC must hold the Owner harmless for any Contractor failure to comply with any applicable work, packaging, transporting, disposal, safety, health, or environmental regulations or contract requirements on the part of themself, their employees, or their subcontractors.

3. TDC Responsibility
   a. The GC must designate, by position and title, one person to act as the TDC who is responsible for ensuring compliance with all applicable federal, state, and local regulations related to the transportation and disposal miscellaneous hazardous materials waste generated by the work covered by this section. The TDC's responsibilities include, but are not limited to, accurate identification and classification of the miscellaneous hazardous materials wastes; determination of proper shipping names; identification of marking, labeling, packaging, and placarding requirements; completion of waste profiles, hazardous waste manifests,

PCB manifests, bill of ladings, exception and discrepancy reports; and all other transportation and disposal documentation required by this section.

C. Site Conditions

1. The condition of the miscellaneous hazardous materials at the site are described in the HMA, and those conditions were accurate as of the dates of inspection cited in that HMA. Prior to starting work in any area, the MHRC and GC must verify the accuracy of the conditions that are presented in the HMA, the hazards abatement design drawings and specifications, and the MHRC's approved Miscellaneous Hazards Abatement Plan (MHAP).

2. The building may be occupied and in use during the work. The MHRC and GC must coordinate the timing of work with the Owner and other trades to ensure there are no adverse effects to building functions or occupants, and that other performance requirements of the contract are met.

D. Security

1. The MHRC and GC are jointly responsible for and must control access to the areas where miscellaneous hazardous materials removal work is being performed and areas where miscellaneous hazardous materials are being stored. Access must be restricted to properly trained and protected persons authorized to be in those areas. Entry into these areas by unauthorized persons must be reported immediately to the Competent Person by anyone observing the entry. The Competent Person must immediately require any unauthorized person to leave the regulated area and then notify the Owner and the GC.

E. Variations in Quantity

1. The estimated quantities of miscellaneous hazardous materials to be removed and/or disturbed are shown on the hazardous abatement drawings. Nothing in this section may be interpreted as limiting the extent of work otherwise required by this contract and related documents. Refer to the HMA for detailed information on the miscellaneous hazardous materials known or assumed to be present at this site.

2. No quantities are provided for the removal and disturbance of lead-containing materials which are incidental to the demolition work (i.e. demolition or surface preparation of walls or other components painted with lead-containing paints). Quantities are provided for metallic lead found in components which can generally be removed intact (e.g. batteries, VTR flashings, sheet lead, etc.). Metallic lead quantities do not include lead-containing solders or lead-containing sealants.

3. The estimated quantities are to be considered a baseline for bidding purposes only and are based on limited assessments of materials located within the project work areas which were made accessible to the designer for use in preparing the hazards abatement drawings and specifications. The MHRC and GC must satisfy themselves of the actual quantities to be removed and disposed of and to conduct that work in accordance with applicable laws of the authorities having jurisdiction. The MHRC and GC must document the locations and quantities of miscellaneous hazardous materials removed each day from each work area. Quantities of miscellaneous hazardous materials must match the units used on the hazardous abatement drawings. Where, in the opinion of the MHRC or GC, the use of alternative units is necessary, those alternative units may be used with preapproval from the Owner. Minor variations (+/- 10 percent) in the quantities of miscellaneous hazardous materials shown on the hazardous abatement drawings are considered as having no impact on contract price or the performance requirements of this contract. The MHRC and

GC must submit unit pricing within their bid for each miscellaneous hazardous materials identified on the drawings in case additional quantities of material in excess of the minor variation stated above are required to be removed or disturbed and disposed of in order to accommodate the work. The unit prices submitted by the MHRC and GC are to be used as the cost basis for additional work required under the contract.

F. Preconstruction Conference

1. After the Preconstruction Submittals have been reviewed and approved, a preconstruction meeting must be held with the following parties in attendance at a minimum: the MHRC and their Competent Person, the GC, other interested subcontractors, the CPIH, the IIHT, and the Owner. The goals of the preconstruction meeting are to discuss the planned scope, phasing, and overall coordination and execution of the miscellaneous hazardous materials work; to verify that the approved Preconstruction Submittals are still valid; to identify any potential issues with the project scope, timing, or planning as it relates to the miscellaneous hazardous materials scope of work, and to ensure agreement among the parties prior to commencing work. The preconstruction meeting minutes and sign in sheet must be submitted to the Owner within 5 days after the completion of the preconstruction meeting.

G. Stop Work Order

1. If the Owner or representative of a regulatory authority having jurisdiction presents a verbal Stop Work Order, the MHRC and GC must immediately stop all miscellaneous hazardous materials removal work and must maintain all work area protections. If a verbal Stop Work Order is issued, the Owner or a representative of a regulatory authority having jurisdiction will follow-up with a written order to the MHRC and GC as soon as it is practicable. The MHRC and GC must not resume any miscellaneous hazardous materials removal activity until authorized to do so in writing by the Owner or a representative of a regulatory authority having jurisdiction. A Stop Work Order may be issued at any time the Owner or a representative of a regulatory authority having jurisdiction determines miscellaneous hazardous materials removal work conditions/activities are not being performed within the requirements of this specification, the MHRC's approved MHAP, regulatory requirements, or that an imminent hazard exists to human health or the environment. Work stoppage will continue until conditions have been corrected to the satisfaction of the Owner or the representative of a regulatory authority having jurisdiction. Standby time and costs for corrective actions will be borne by the MHRC or GC, including any applicable time or expense incurred by any of the personnel categories stated in the beginning of this paragraph, as a result of the Stop Work Order. The occurrence of any of the following events must be reported immediately by the MHRC's Competent Person to the Owner and GC using the most expeditious means (e.g., verbal or telephonic), followed up with written notification to the Owner as soon as practicable. The MHRC and GC must immediately stop miscellaneous hazardous materials removal removal/disturbance activities and initiate corrective actions if:
   a. Mercury vapor concentrations exceed 600 ng/m^3 outside of the regulated work area.
   b. Breach or break in regulated area containment barrier(s).
   c. Pressure within a Negative Pressure Enclosure is not maintained at or below -0.02 inch WCG.
   d. Serious injury/death at the site.
   e. Fire/safety emergency at the site.
   f. Respiratory protection system failure.
   g. Power failure or loss or inadequate use of wetting agent.
   h. Any visible emissions observed outside the regulated area.
   i. Failure to follow project specification requirements.

H. Protection of Existing Work to Remain

1. The MHRC and GC must not damage or cause contamination to existing finishes or other existing elements or areas scheduled to remain at the site. Where such elements or areas are damaged or contaminated as verified by the Owner using visual inspection and/or sample analysis, the MHRC and GC must stop work and restore those elements or areas to their original undamaged and uncontaminated condition at no additional cost to the Owner. Once the elements or areas have been restored to the satisfaction of the Owner, the work may proceed.

I. Monitoring, Inspections, Sampling, and Testing

1. All sampling required by this section must be performed by qualified persons meeting the minimum requirements of this section.

2. The CPIH is responsible for conducting all non-clearance monitoring, inspections, sampling, and testing required by this section.

3. All final visual inspections and clearance air monitoring required by this section must be performed by the IIHT.

4. All costs related to the monitoring, inspections, sampling, and testing required by this section are to be borne by the MHRC and/or GC.

5. All costs related to additional monitoring, inspections, sampling, and testing exceeding the minimum requirements of this section, including those costs for any failed final visual inspections or clearance air monitoring, must come at no additional cost to the Owner.

6. The Owner or the representative of a regulatory authority having jurisdiction may observe any monitoring, inspections, sampling, and testing performed under this contract at any time or location at their discretion.

7. The Owner or the representative of a regulatory authority having jurisdiction may perform additional monitoring, inspections, sampling, and testing at any time or location at their discretion.

J. Onsite Documentation

1. The MHRC and GC must ensure employees have access to complete copies of the contract documents, the submittal items and other elements required by this section, and to all applicable standards, regulations, codes, and other documents. Electronic format is acceptable except where the contract documents, the submittal items and other elements required by this section, or applicable standards, regulations, codes, or other documents specifically require physical copies to be maintained. Access must be made available at the jobsite at no cost to the employee during normal working hours or at all times work covered by this section is being performed.

1.8. REQUIREMENTS

A. Description of Work

1. The following tables list the known and assumed miscellaneous hazardous materials at this site. The miscellaneous hazardous materials that are located within the Main Work Areas under this contract that are anticipated to be disturbed by the Major Elements of the miscellaneous hazardous materials work being performed are designated by the

Disturbance Code “Y”. The miscellaneous hazardous materials that may be located inside of the Main Work Areas and/or outside of the Main Work Areas that may require disturbance as necessary to accommodate the overall scope of work and related Auxiliary Work under this contract are designated by the Disturbance Code “M". All remaining miscellaneous hazardous materials are not anticipated to require disturbance to compete any element of work under this contract are designated by the Disturbance Code “N”.

LEAD			
MATERIAL DESCRIPTION	Disturbance Code	*Confirmed = C *Assumed = A *Not Present = None *Presence of material in the era is unknown = -	
		1969	1995
Lead-containing paints	Y	C	C
Paints classified as “lead-based” paint by the EPA	M	C	-
Metallic lead in solder on copper piping	Y	C	A
Metallic poured lead sealants in bell and spigot pipe connections	Y	C	A
Metallic lead in VTR flashings	N	None	None
Metallic lead inside of roof drain bowls at clamping rings	N	None	None
Metallic sheet lead	N	-	-
Lead-acid batteries	N	A	A
Glazings of ceramic/porcelain wall tiles	N	A	A
Glazings of ceramic/porcelain plumbing fixtures	N	A	A
“Formica” laminate panels on cabinetry and countertops	N	A	A
Plastics and vinyl products	Y	C	C

OTHER COMMON HAZARDOUS BUILDING MATERIALS			
MATERIAL DESCRIPTION	Disturbance Code	*Confirmed = C *Assumed = A *Not Present = None *Presence of material in the era is unknown = -	
		1969	1995
Universal waste batteries other than lead-acid batteries	N	A	A
Mercury-containing lamps, fluorescent	N	A	A
Mercury-containing lamps, high intensity discharge	Y	A	A
Mercury-containing lamps, neon	N	-	-
Mercury-containing equipment, thermostats	N	A	A
Mercury-containing equipment, HVAC system control switches	N	A	A

OTHER COMMON HAZARDOUS BUILDING MATERIALS			
MATERIAL DESCRIPTION	Disturbance Code	*Confirmed = C *Assumed = A *Not Present = None *Presence of material in the era is unknown = -	
		1969	1995
Poured polyurethane flooring classified as a hazardous waste for mercury	N	-	C
PCB-containing light ballasts	Y	A	-
Contamination from leaking PCB-containing light ballasts	M	A	-
Any material or product which contains greater than 1 mg/Kg of total PCBs	M	A	-
Any manufactured article, other than a PCB Container, that contains PCBs and whose surface(s) has been in direct contact with PCBs. “PCB Article” includes capacitors, transformers, electric motors, pumps, pipes and any other manufactured item: (1) which is formed to a specific shape or design during manufacture, (2) which has end use function(s) dependent in whole or in part upon its shape or design during end use, and (3) which has either no change of chemical composition during its end use or only those changes of composition which have no commercial purpose separate from that of the PCB Article	M	-	-
Any package, can, bottle, bag, barrel, drum, tank, or other device used to contain PCB Articles or PCB Equipment, and whose surface(s) has not been in direct contact with PCBs	N	-	-
Any package, can, bottle, bag, barrel, drum, tank, or other device that contains PCBs or PCB Articles and whose surface(s) has been in direct contact with PCBs	N	-	-
A non-liquid material containing PCBs at concentrations ≥50 ppm but <500 ppm; a liquid material containing PCBs at concentrations ≥50 ppm but <500 ppm or where insufficient liquid material is available for analysis, a non-porous surface having a surface concentration >10 µg/100 cm2 but <100 µg/100 cm2, measured by a standard wipe test as defined in § 761.123.	M	-	-

OTHER COMMON HAZARDOUS BUILDING MATERIALS			
MATERIAL DESCRIPTION	Disturbance Code	*Confirmed = C *Assumed = A *Not Present = None *Presence of material in the era is unknown = -	
		1969	1995
Any electrical equipment including, but not limited to, transformers (including those used in railway locomotives and self-propelled cars), capacitors, circuit breakers, reclosers, voltage regulators, switches (including sectionalizers and motor starters), electromagnets, and cable, that contains PCBs at concentrations of ≥50 ppm and <500 ppm in the contaminating fluid. In the absence of liquids, electrical equipment is PCB-Contaminated if it has PCBs at >10 µg/100 cm2 and <100 µg/100 cm2 as measured by a standard wipe test (as defined in § 761.123) of a non-porous surface	M	-	-
Any manufactured item, other than a PCB Container or a PCB Article Container, which contains a PCB Article or other PCB Equipment, and includes microwave ovens, electronic equipment, and fluorescent light ballasts and fixtures	M	-	-
PCB waste that is generated by residents on the premises of a temporary or permanent residence for individuals (including individually owned or rented units of a multi-unit construction), and that is composed primarily of materials found in wastes generated by consumers in their homes. PCB household waste includes unwanted or discarded non-commercial vehicles (prior to shredding), household items, and appliances or appliance parts and wastes generated on the premises of a residence for individuals as a result of routine household maintenance by or on behalf of the resident. Bulk or commingled liquid PCB wastes at concentrations of ≥50 ppm, demolition and renovation wastes, and industrial or heavy duty equipment with PCBs are not household wastes	N	-	-
Any PCB Article, PCB Article Container, PCB Container, PCB Equipment, or anything that deliberately or unintentionally contains or has as a part of it any PCB or PCBs	M	-	-
PCBs regulated for disposal under subpart D of 40 CFR 761 that also contain source, special nuclear, or byproduct material subject to regulation under the Atomic Energy Act of 1954, as amended, or naturally-occurring or accelerator-produced radioactive material	N	-	-

OTHER COMMON HAZARDOUS BUILDING MATERIALS			
MATERIAL DESCRIPTION	Disturbance Code	*Confirmed = C *Assumed = A *Not Present = None *Presence of material in the era is unknown = -	
		1969	1995
waste containing PCBs as a result of a spill, release, or other unauthorized disposal, at the following concentrations: Materials disposed of prior to April 18, 1978, that are currently at concentrations ≥50 ppm PCBs, regardless of the concentration of the original spill; materials which are currently at any volume or concentration where the original source was ≥500 ppm PCBs beginning on April 18, 1978, or ≥50 ppm PCBs beginning on July 2, 1979; and materials which are currently at any concentration if the PCBs are spilled or released from a source not authorized for use under this part. PCB remediation waste means soil, rags, and other debris generated as a result of any PCB spill cleanup, including, but not limited to: (1) Environmental media containing PCBs, such as soil and gravel; dredged materials, such as sediments, settled sediment fines, and aqueous decantate from sediment. (2) Sewage sludge containing <50 ppm PCBs and not in use according to § 761.20(a)(4); PCB sewage sludge; commercial or industrial sludge contaminated as the result of a spill of PCBs including sludges located in or removed from any pollution control device; aqueous decantate from an industrial sludge. (3) Buildings and other man-made structures (such as concrete floors, wood floors, or walls contaminated from a leaking PCB or PCB-Contaminated Transformer), porous surfaces, and non-porous surfaces	N	-	-
Domestic septage as defined in 40 CFR 503.9 inside of the septic tanks	N	-	-
All electrical transformers at the building, including those in loose electrical equipment, with less than 3 pounds of fluid, circuit breakers, reclosers, oil-filled cable, and rectifiers	N	-	-
All electrical equipment at the building that has capacitors of any size or age, including those in loose electrical equipment	N	-	-
PCB-containing equipment	M	-	-
Ozone Depleting Substances (ODS), consumer-grade refrigerators	N	A	A
Ozone Depleting Substances (ODS), consumer-grade freezers	N	A	A
Ozone Depleting Substances (ODS), consumer-grade air conditioning equipment	N	A	A
Ozone Depleting Substances (ODS), commercial-grade refrigerators	N	A	A

OTHER COMMON HAZARDOUS BUILDING MATERIALS			
MATERIAL DESCRIPTION	Disturbance Code	*Confirmed = C *Assumed = A *Not Present = None *Presence of material in the era is unknown = -	
		1969	1995
Ozone Depleting Substances (ODS), commercial-grade freezers	N	A	A
Ozone Depleting Substances (ODS), commercial-grade air conditioning systems	N	A	A
Ozone Depleting Substances (ODS), drinking fountains	N	A	A
Ozone Depleting Substances (ODS), Halons	N	-	-
Ozone Depleting Substances (ODS), Other	N	-	-
Radioactive materials in self-illuminating exit signs	N	A	A
Radioactive materials in smoke detectors	N	A	A
Heat transfer fluids, glycol-based	M	-	-
Heat transfer fluids, water-based	N	-	-
Heat transfer fluids, unknown system contents	M	A	A
Specialty paint products used in parking lot striping and similar features that may contain one or more of the following potentially hazardous constituents: lead, chromium, hexavalent chromium, silica, cadmium	N	A	A

2. The work includes all related submittals, monitoring, inspections, sampling, testing, removal, disturbance, transportation, disposal, recordkeeping, documentation, and other elements as specified herein.

1.9. LISTING OF REQUIRED SUBMITTALS

A. Preconstruction Submittals

1. Miscellaneous Hazard Abatement Plan (MHAP).

2. Employee training documentation.

3. Competent Person documentation.

4. Affidavit of Medical Surveillance, Respiratory Protection, and Training Accreditation.

5. License and insurance for the MHRC.

6. CPIH and IIHT documentation.

7. Testing laboratory documentation.

8. Documentation of notifications.

9. TDC documentation.

10. Waste transporter documentation.

11. Waste disposal site documentation.

12. Preconstruction meeting minutes and sign in sheet (to be submitted after initial approval of preconstruction submittals but prior to the start of work).

13. Pre-work activities (to be submitted after initial approval of preconstruction submittals but prior to the start of work).

B. Periodic Submittals

1. Sampling results.

2. Project logs.

3. Sampling and analysis plan.

4. Updates to any of the preconstruction submittals.

C. Closeout Submittals

1. Completed disposal records.

2. Updates to any previously submitted submittals.

1.10. DETAILS OF REQUIRED PRECONSTRUCTION SUBMITTALS

A. Miscellaneous Hazard Abatement Plan (MHAP)

1. The Miscellaneous Hazard Abatement Plan (MHAP) must not be combined with other hazard abatement plans and must be prepared and signed by the MHRC and/or GC and their Competent Person. Provide shop drawings for each affected area and a table of contents for each submittal item, which follows the sequence of requirements in the contract. The plan, at a minimum, must include the proposed means, methods, materials, equipment, and other procedures to be used by the MHRC which must include, but not be limited to, the following elements for each of the miscellaneous hazardous material to be removed:
   a. Procedures for notification of other employers and their employees performing work at the site under this contract, building occupants, and other interested parties or as directed by the Owner.
   b. A description of each miscellaneous hazardous material to be removed.
   c. Estimated quantities of each miscellaneous hazardous material to be removed.
   d. A pre-work sampling plan describing the procedures to be used to identify, sample, and quantify any additional miscellaneous hazardous materials found that will require disturbance.
   e. Procedures used to identify, execute, and document potential pre-cleaning activities.
   f. Procedures to ensure the protection of existing work to remain.
   g. Isolation and protection of existing systems.
   h. A detailed plan of the safety precautions such as lockout, tagout, tryout, fall protection, and confined space entry procedures and equipment and work procedures to be used during the removal, disturbance, or demolition of each miscellaneous hazardous material to be removed.

i. Work area setup to be used for each type of miscellaneous hazardous material to be removed.
j. A description of the minimum training requirements for employees for each type of miscellaneous hazardous material to be removed.
k. Personal protective equipment to be used for each type of miscellaneous hazardous material to be removed.
l. Procedures for the decontamination of personnel for each type of miscellaneous hazardous material to be removed.
m. Removal procedures for each type of miscellaneous hazardous material to be removed.
n. Procedures to be used for the decontamination of existing building components for each type of miscellaneous hazardous material to be removed.
o. Expendable materials to be used during the removal of miscellaneous hazardous materials for each type of miscellaneous hazardous material to be removed.
p. Procedures to be used in the event miscellaneous hazardous materials are spilled, leaked, damaged, or otherwise released in a manner resulting in contamination of existing building components.
q. Procedures to ensure negative air pressure is maintained within Negative Pressure Enclosures and corrective actions to be taken in the event of equipment failure or other events which may lead to inadequate negative pressure.
r. Procedures for supplying, controlling, treating, and discharging water and wastewater.
s. Monitoring and sampling to be used for each type of miscellaneous hazardous material to be removed.
t. Waste packaging, storage, loadout, decontamination, manifesting, transport, and disposal procedures.
u. Procedures to follow in the event additional quantities of miscellaneous hazardous materials are encountered after the start of work.
v. Current copies of accreditations relevant to the miscellaneous hazardous materials being removed of the person who prepared the MHRP and their Competent Person.

2. At a minimum, shop drawings must show the following elements:
   a. The locations and extents of each regulated work area.
   b. Locations of critical barriers.
   c. Locations of existing systems within and/or adjacent to the regulated work area boundaries to be isolated during the miscellaneous hazardous materials removal activities.
   d. Location of decontamination area(s).
   e. Location(s) of negative pressure exhaust routing.
   f. Location of make-up air entrance(s) into each regulated work area.
   g. Locations of water supplies and wastewater treatment and discharge area(s).
   h. Locations of monitoring and sampling equipment.
   i. Location(s) of first aid materials.
   j. Location(s) of fire extinguishers.
   k. Emergency egress routes.
   l. Waste loadout route(s).
   m. Location of temporary storage area(s).
   n. The location of copies of all applicable codes, standards, regulations, notices, SDSs, air monitoring results, the MHRC's and/or GC's approved work plan, and other pertinent documents.

3. Shop drawings are required only if:
   a. Poured polyurethane gym flooring classified as a hazardous waste for mercury is being removed.

b. The miscellaneous hazardous materials being removed are required to be performed within a regulated area.
c. Monitoring and sampling is required due to the type of miscellaneous hazardous material being removed.

B. Employee Training

1. All persons involved in the removal of the following miscellaneous hazardous materials must have received training required by 29 CFR 1926.21; 29 CFR 1926.62; 8 AAC 61; 40 CFR 273.16; and any other state or local regulations applicable to the specific miscellaneous hazardous material:
   a. Removal of intact universal waste mercury-containing lamps, mercury-containing thermostats, or mercury-containing equipment.
   b. Removal of intact universal waste batteries.
   c. Removal of intact PCB-containing light ballasts.
   d. Removal of heat transfer fluids other than those classified as a hazardous waste.
   e. Removal of intact components with radioactive materials.
   f. Removal of intact equipment containing ozone depleting substances.
   g. Removal of lead-containing materials other than those classified as a hazardous waste.

2. In addition to the training required above, all persons involved in the removal and/or cleanup of the following miscellaneous hazardous materials must have received training equivalent to the training in 29 CFR 1926.65(e):
   a. Poured polyurethane gym flooring classified as a hazardous waste for mercury.
   b. Non-intact mercury-containing lamps, mercury-containing thermostats, or mercury-containing equipment.
   c. Non-intact universal waste batteries.
   d. Heat transfer fluids classified as a hazardous waste.
   e. Non-intact PCB-containing light ballasts.
   f. Removal of lead-containing materials classified as a hazardous waste.

3. All persons involved in the removal of non-intact components with radioactive materials or cleanup and removal of components contaminated by radioactive materials must have received training equivalent to the training in 10 CFR 20; 29 CFR 1926.53; and any other applicable state or local regulations.

4. All persons involved in the recovery of ozone depleting substances from equipment must have received training required by 40 CFR 82.161 and any other applicable state or local regulations.

5. All persons who perform the functions of a Hazmat Employee as defined by 49 CFR 171.8 must be trained in accordance with 49 CFR 172 Subpart H.

6. Submit proof of current accreditation for persons who received training required by this section. Organize certificates by individual worker, not grouped by type of certification.

7. Additional training related to health, safety, and environmental issues may be required, and it is the responsibility of the MHRC, the MHRC's Competent Person, the GC, and the CPIH to identify those additional issues and to recommend training as necessary to ensure compliance with applicable regulations.

C. Competent Person

1. All miscellaneous hazardous materials removal work must be performed under the supervision of a Competent Person as defined by 29 CFR 1926.32 and 29 CFR 1926.62 and who additionally meets the employee training requirements of this section.

2. Certify in writing that the proposed Competent Person meets the minimum requirements of this section and submit evidence to support such certification. Examples of acceptable documentation include, but are not limited to, resumes, training documentation, or descriptions of prior experience supervising or performing miscellaneous hazardous materials removal work.

D. Affidavit of Medical Surveillance, Respiratory Protection, and Training Accreditation

1. Provide a written statement certifying that the following records are current and available on request for all persons engaged in miscellaneous hazardous materials work:
   a. Evidence of training on the contents of 29 CFR 1926.21; 29 CFR 1926.62; 8 AAC 61, and other related training required by this section and federal, state, or local agencies.
   b. Evidence of training on the contents of the MHRC's written Respiratory Protection Program and the requirements of 29 CFR 1910.134 and its appendices.
   c. Documentation of medical evaluations and determinations, respirator fit tests, and associated recordkeeping required by 29 CFR 1926.103, 29 CFR 1926.62, and other regulations required by this section and federal, state, or local agencies.

E. MHRC License and Insurance

1. Submit a copy of the MHRC's license issued by the State of Alaska and a copy of their insurance policy, including exclusions, with a letter from their agent stating in plain language the coverage provided and the fact that miscellaneous hazardous materials removal activities are covered by the policy.

F. Contractor's Professional Industrial Hygienist (CPIH) ; Independent Industrial Hygiene Technician (IIHT)

1. Submit the following information for the Contractor's Professional Industrial Hygienist (CPIH):
   a. The name, address, and telephone number of the CPIH.
   b. Evidence that the CPIH meets the employee training requirements of this section for each miscellaneous hazardous material affected by the project.

2. Submit the following information for the Independent Industrial Hygiene Technician (IIHT):
   a. The name, address, and telephone number of the IIHT.
   b. Evidence that the IIHT meets the employee training requirements of this section for each miscellaneous hazardous material affected by the project.
   c. A written statement certifying that the IIHT and IIHT's employer are completely independent of the MHRC and have no employee or employer relationship which could constitute a conflict of interest.

G. Testing Laboratory

1. The minimum analytical capabilities required for the miscellaneous hazardous materials work under this contract include:
   a. Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, EPA publication SW-846, Method 1110A – Corrosivity towards steel.
   b. Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, EPA publication SW-846, Method 1311 – Toxicity Characteristic Leaching Procedure.

c. Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, EPA publication SW-846, Method 6010D – Inductively Coupled Plasma-Atomic Emission Spectrometry.
d. Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, EPA publication SW-846, Method 6020B – Inductively Coupled Plasma-Mass Spectrometry.
e. Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, EPA publication SW-846, Method 7000B – Flame Atomic Absorption Spectrophotometry.
f. Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, EPA publication SW-846, Method 7010 – Graphite Furnace Atomic Absorption Spectrophotometry.
g. Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, EPA publication SW-846, Method 7040A – Mercury in Liquid Waste (Manual Cold-Vapor Technique).
h. Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, EPA publication SW-846, Method 7471B – Mercury in Solid or Semisolid Waste (Manual Cold-Vapor Technique).
i. Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, EPA publication SW-846, Method 9040C – pH Electrometric Measurement.
j. NIOSH NMAM 5503 – Polychlorobiphenyls.
k. NIOSH NMAM Method 6009 – Mercury, modified to achieve a limit of quantification less than 60 ng/m^3.

2. Submit the following information for each testing laboratory:
   a. The name, address, and telephone number of the testing laboratory.
   b. The testing laboratory's current American Industrial Hygiene Association Laboratory Accreditation Programs (AIHA LAP) certificate of accreditation; scope of accreditation; and the most recent Proficiency Testing Performance Report for the Industrial Hygiene Proficiency Analytical Testing (IHPAT) program showing the testing laboratory as "Proficient" for the "Metals Analyte Class" in the "Overall Performance Summary".
   c. For laboratories performing TCLP using Method 1311, submit current copies of their certificate of accreditation issued by an accrediting body listed on the National Environmental Laboratory Accreditation Management System maintained by the National Environmental Laboratory Accreditation Program (NELAP).
   d. The testing laboratory's current American Industrial Hygiene Association Laboratory Accreditation Programs (AIHA LAP) certificate of accreditation; scope of accreditation; and the most recent Proficiency Testing Performance Report for the Environmental Lead Proficiency Analytical Testing (ELPAT) program showing the testing laboratory as "Proficient" for the "Paint Analyte Class", "Soil Analyte Class", and "Dust Analyte Class" in the "Overall Performance Summary".
   e. The testing laboratory must be independent of the MHRC and GC and must have no employee or employer relationship which could constitute a conflict of interest.

H. Notifications

1. Submit the EPA identification number for the site. If the site was not already assigned an EPA identification number, the TDC must assist the Owner in obtaining an EPA identification number for the site under the following conditions:
   a. If the work covered by this section will by itself generate hazardous wastes in excess of the those allowed for a very small quantity generator as defined by 40 CFR 260.10.
   b. If other hazardous wastes are being generated at the site, and the work covered by this section will generate additional hazardous wastes which when added together

is in excess of the those allowed for a very small quantity generator as defined by 40 CFR 260.10.

c. If the work covered by this section cannot be performed in accordance with the conditions for exemption for a very small quantity generator defined in 40 CFR 262.14.

d. If using the alternative standards for episodic generation found in 40 CFR 262 Subpart L.

e. If the work covered by this section will by itself generate universal wastes in excess of the those allowed for a small quantity handler of universal waste as defined by 40 CFR 273.9.

f. If other universal wastes are being generated at the site, and the work covered by this section will generate additional universal wastes which when added together is in excess of the those allowed for a small quantity handler of universal waste as defined by 40 CFR 273.9.

g. If otherwise required by 40 CFR Subchapter I.

2. Submit copies of notifications to the regional EPA authority:

a. As required by 40 CFR 262.232 for episodic generation as defined by 40 CFR 262.231.

b. As required by 40 CFR 273.32 for large quantity handlers of universal waste as defined by 40 CFR 273.9.

c. If otherwise required by 40 CFR Subchapter I.

3. If wastes will cross international boundaries, submit notifications as required by 40 CFR 262 Subpart H and any additional notifications required by the country through which the wastes will be transported.

I. TDC Documentation

1. Certify in writing that the proposed TDC meets the minimum requirements of this section and submit evidence to support such certification. Examples of acceptable documentation include, but are not limited to, resumes, training documentation, or descriptions of prior experience supervising or performing miscellaneous hazardous materials removal work.

2. Submit evidence that the TDC meets the employee training requirements of this section for each miscellaneous hazardous material affected by the project.

J. Waste Transporter

1. Submit the EPA identification number for each transporter who will transport wastes generated by the work covered by this section which are classified as:

a. Hazardous wastes, hazardous materials, or hazardous substances as defined by 40 CFR 261.3 and 49 CFR 171.8.

b. PCB wastes as defined by 40 CFR 761.3.

2. Submit written evidence that the transporter is approved to transport universal wastes in accordance with the requirements of 40 CFR 263 Subpart D.

3. Submit written evidence that each transporter who transports hazardous wastes, hazardous materials, or hazardous substances as defined by 40 CFR 261.3 and 49 CFR 171.8 is registered in accordance with 49 CFR 107 Subpart G, if required by 49 CFR 107.601.

4. Submit written evidence that each transporter who transports hazardous wastes, hazardous materials, or hazardous substances as defined by 40 CFR 261.3 and 49 CFR 171.8 has received training in accordance with 49 CFR 172 Subpart H.

K. Waste Disposal Site

1. Submit the following for each facility which will receive, handle, treat, store, accumulate, dispose of, recycle, or reclaim any of the miscellaneous hazardous wastes generated by the work covered by this section:
   a. The name, address, and telephone number of the facility.
   b. The EPA identification number.

2. Submit the following for each facility which will receive, handle, treat, store, accumulate, dispose of, recycle, or reclaim universal wastes generated by the work covered by this section:
   a. Certification of the facility's universal waste handler status as a small quantity handler of universal waste, a large quantity handler of universal waste, or a destination facility as defined by 40 CFR 273.9.

3. Submit the following for each facility which will receive, handle, treat, store, accumulate, dispose of, recycle, or reclaim miscellaneous hazardous wastes generated by the work covered by this section which meet the definition of hazardous wastes, hazardous materials, or hazardous substances as defined by 40 CFR 261.3 and 49 CFR 171.8; universal wastes as defined by 40 CFR 273.9; and PCB wastes as defined by 40 CFR 761.3:
   a. Evidence the facility is permitted to receive and manage the types of wastes being disposed of in accordance with 40 CFR 124, 40 CFR 270, and RCRA Subtitle C.
   b. For PCB wastes, evidence the facility is approved to receive and manage PCB wastes in accordance with TSCA and 40 CFR 761.
   c. Written approval from the facility stating that they will accept the types of wastes being transported to their facility.

4. Submit evidence that each facility which will handle, treat, store, accumulate, dispose of, recycle, or reclaim equipment with radioactive components being disposed of as part of the work covered by this section:
   a. Is a specific licensee authorized by the NRC to accept such wastes in accordance with 10 CFR Chapter I and their Radioactive Materials License number.

1.11. DETAILS OF REQUIRED PERIODIC SUBMITTALS

A. Sampling Results.

1. Submit the flowing information for all sampling events, regardless of the type of sampling:
   a. The printed name and signature of the individual who conducted the sampling and their certification names, numbers, and expiration date relevant to the type of sampling performed.
   b. The date the samples were collected.
   c. The requested analytical method.
   d. The sample prefixes, numbers, descriptions, and other unique identifying information.
   e. Field logs associated with the sampling.
   f. Drawings showing the locations of all sampling locations.
   g. Chain of custody documentation for the samples.

h. A finalized report from the testing laboratory showing the name and location of the testing laboratory, the dates of analysis, the name of the analysts, the analytical method used, and the results of the analysis for all samples. The finalized report must be signed by the analyst.

2. Submit the flowing additional information for all air sampling events, regardless of the type of sampling:
   a. Purpose/type of air sample (e.g. personnel, inside or outside work area, baseline, clearance, etc.).
   b. For personnel monitoring, the name of the person being monitored, their work activities, and the type of PPE being worn.
   c. The type of sampling cassette or media used.
   d. The locations of samples and activities being performed during the sampling period.
   e. Sampling pump manufacturer, model number, and serial number.
   f. Beginning flow rate, end flow rate, and average flow rate (L/min).
   g. Equipment and equipment identifier (serial number, etc.) used to calibrate flow rates.
   h. Sample period start time, stop time, and elapsed time (in minutes).
   i. Total air volume sampled (liters).

3. Submit the following additional information for all wipe sampling events, regardless of the type of sampling:
   a. Purpose/type of wipe sample (e.g. inside or outside work area, baseline, clearance, etc.).
   b. The type of sampling wipes, templates, sample containers, or other media used.
   c. Lot number and expiration date of wipes used.
   d. The total area sampled in square feet, square centimeter, or other unit which is capable of being converted to square feet or square centimeter.

4. Submit the following additional information for all personnel monitoring events:
   a. Purpose of monitoring personnel.
   b. Types of PPE being worn by personnel.
   c. If personnel monitoring was performed as part of an exposure assessment, submit the written results of the assessment.

5. Submit the flowing additional information for all clearance monitoring events:
   a. Signed and completed final visual inspection forms.

6. Submit the flowing additional information for clearance monitoring events conducted after the complete removal of poured polyurethane gym flooring classified as a hazardous waste for mercury:
   a. Temperature and relative humidity logs collected during the sampling period.

7. Documentation for all sampling events must be submitted to the Owner within 24 hours of receiving the finalized laboratory results.

B. Work area inspections and clearances.

1. Documentation of final visual inspections must:
   a. Include the time and date of the inspection.
   b. The name and signature of the IIHT conducting the inspection.
   c. The IIHT’s client which authorized the inspection.
   d. The name of the GC, the MHRC, and the MHRC’s Competent Person.
   e. A written description of the location where the inspection is being performed.
   f. A sketch or drawing of the location the inspection is being performed.

g. Indicate whether the work area was satisfactorily cleaned or indicate that the work area was not satisfactorily cleaned.
h. If the work area was satisfactorily cleaned, include a statement that the work area is ready for clearance air monitoring.
i. If the work area was not satisfactorily cleaned, indicate the deficiencies noted and the recommended corrective actions to be taken.
j. Be uniquely labeled or titled so that it can be referenced by other documentation.

2. Clearance monitoring documentation must:
a. Indicate the unique label or title of the satisfactory final visual inspection for the work area.
b. Include all other sampling documentation required by this section.

3. Documentation for all work area inspections and clearance events must be submitted to the Owner within 24 hours of receiving the finalized laboratory results.

C. Project Logs.

1. Submit all project logs no later than 24 hours after the end of shift.

2. The MHRC's written daily log must include:
a. The date and time the work took place.
b. The name and signature of the Competent Person.
c. The name of the CPIH and a description of the type(s) of sampling and inspections performed by the CPIH.
d. A description of the work being performed.
e. A sketch or drawing showing the location of the work being performed.
f. The types and quantities of miscellaneous hazardous materials removed.

3. Regulated area sign-in sheets must include:
a. The date and time the work took place.
b. The name and signature of the Competent Person.
c. A description of where the work is being performed, and if more than one regulated area is present, which regulated area the sign-in sheet applies to.
d. The name and signature of each person entering and exiting the regulated work area.

4. Pressure differential recordings for Negative Pressure Enclosures.

D. Sampling and analysis plan.

1. A sampling and analysis plan in accordance with EPA recommendations and industry standards. The sampling and analysis plan must include the following general elements:
a. The location of the sampling activities.
b. Existing waste characterization data for the materials to be sampled, if any.
c. Sampling rationale and objectives.
d. The material to be sampled and constituents of concern.
e. Sample selection and collection procedures.
f. Sample documentation and shipment.
g. Analytical methods to be used and each method's limits of detection, limits of quantification, and reporting units.
h. The selected analytical laboratory.

E. Submit updates to the preconstruction submittals generated during the work.

1.12. DETAILS OF REQUIRED CLOSEOUT SUBMITTALS

A. Completed disposal records:

1. The transportation and disposal of any materials classified as a hazardous waste by 40 CFR 261.3 must be documented using EPA Form 8700-22 “Uniform Hazardous Waste Manifest” (including, if necessary, EPA Form 8700-22A), or electronic manifest.

2. The transportation and disposal of any materials classified as a PCB waste by 40 CFR 761.3 must be documented using EPA Form 8700-22 “Uniform Hazardous Waste Manifest” (including, if necessary, EPA Form 8700-22A), or electronic manifest, a certificate of disposal in accordance with 40 CFR 761.218, and any additional information if required by of 40 CFR 761 Subpart K.

3. If wastes crossed international boundaries, submit additional waste transport and disposal documentation as required by 40 CFR 262 Subpart H and as required by the country through which the wastes were transported.

4. Documentation for the disposal of each type of universal waste must include the following:
   a. The generator name, address, and phone number.
   b. The transporter’s name, address, and phone number.
   c. The name, address, and phone number of the universal waste transfer facility and/or universal waste handler.
   d. The name, address, and phone number of the destination facility.
   e. The EPA identification number for each generator, handler, transporter, and destination facility.
   f. The type of universal waste.
   g. The date the universal wastes were first removed.
   h. The quantity of universal waste.
   i. The date the universal wastes were transferred to another universal waste handler, transporter, transfer facility, or destination facility.

5. Documentation for the recycling of heat transfer fluids other than those classified as a hazardous waste must include the following:
   a. The name, address, and phone number of the site where the heat transfer fluids were removed.
   b. The transporter’s name, address, and phone number.
   c. The name, address, and phone number of the transfer facility and/or recycling facility.
   d. The type of heat transfer fluids.
   e. The date the heat transfer fluids were first removed.
   f. The quantity of heat transfer fluids.
   g. The date the heat transfer fluids were transferred to another transporter, transfer facility, or final recycling facility.

6. Documentation for the disposal of items with radioactive components waste must include the following:
   a. The name, address, and phone number of the site where the items with radioactive components were removed.
   b. The transporter’s name, address, and phone number.
   c. The name, address, and phone number of the final destination facility.
   d. The manufacturer name, model number, serial number, manufacture date, life rating, and date of removal for each item with radioactive components.
   e. Copies of notifications to the NRC and State Director.

7. Documentation for the disposal of ozone depleting substances must include the following:
   a. The name, address, and phone number of the site where the ozone depleting substances were removed.
   b. The transporter name, address, and phone number.
   c. The name, address, and phone number of the transfer facility and/or final recycling or destruction facility.
   d. The types of ozone depleting substances removed, to include information on any other substances or contaminants which were present in the ODS that would affect how the ODS is regulated, such as those described in 40 CFR 82 Subpart F Appendix A.
   e. The date the ozone depleting substances were first removed.
   f. The quantity of ozone depleting substances.
   g. The date the ozone depleting substances were transferred to another transporter, transfer facility, and/or final recycling or destruction facility.

8. Documentation for the recycling of metallic lead materials must include the following:
   a. The name, address, and phone number of the site where the metallic lead materials were removed.
   b. The transporter name, address, and phone number.
   c. The name, address, and phone number of the transfer facility and/or recycling facility.
   d. The type of metallic lead materials.
   e. The date the metallic lead materials were first removed.
   f. The quantity of metallic lead materials.
   g. The date the metallic lead materials were transferred to another transporter, transfer facility, or final recycling facility.

9. If more than one form is used to document the transportation and disposal of any miscellaneous hazardous material, each form must contain a unique identifying number, page number, and total page count.

B. In addition to these submittals, the closeout submittals must include all updates to previously submitted information as necessary to ensure the documentation requirements of this section are fulfilled.

1.13. PERFORMANCE REQUIREMENTS FOR SUBMITTALS

A. All types of submittals must be submitted as a “submittal package” with all required documentation for the type of submittal, must be reasonably organized, and must not contain duplicate information or other information not required by this section. Piecemeal submittals, incomplete submittals, disorganized submittals, or submittals containing duplicative or unnecessary information will be rejected without review and returned to the MHRC for revision.

B. The MHRC must provide the initial Preconstruction Submittal package required by this section to the Owner no less than 14 days prior to the planned start of work.

C. Periodic Submittals must be provided to the Owner within the timeframes specified for each submittal item. Where no timeframe is provided, the Periodic Submittals must be provided at least weekly.

D. The MHRC must provide the initial Closeout Submittal package required by this section to the Owner no later than 14 days after demobilization from the site by the MHRC.

E. The performance requirements for submittals apply to each construction season and phase separately.

F. The Owner will provide written acceptance or rejection of all submittals no later than 10 days after receiving the submittals.

G. Failure to deliver submittals in accordance with these performance requirements and/or failure to submit any documentation required by this section may result in the withholding of payment until such time a resolution has been reached to the satisfaction of the Owner.

PART 2 - PRODUCTS

2.1. GENERAL

A. The MHRC and GC must provide and maintain a sufficient quantity of materials and equipment required to complete the work of the project. This may include, but is not limited to, HEPA vacuums, scrapers, sprayers, nylon brushes, brooms, disposable mops, rags, sponges, staple guns, shovels, ladders and scaffolding of suitable height and length, fall protection devices, water hoses, airless spray equipment, and any other tools, materials or equipment required to conduct the miscellaneous hazardous materials removal work.

B. All products used during the work must be used in strict accordance with the manufacturer's instructions.

C. Store all materials subject to damage off the ground, away from wet or damp surfaces and under cover sufficient enough to prevent damage or contamination.

D. Flammable and combustible materials must not be stored inside of any structure, and if stored elsewhere onsite, must be stored in a container specifically designed for the storage of such materials.

E. Provide Ground-Fault Circuit Interrupters (GFCI) for all electrical equipment.

F. All electrical-related work must be performed by a licensed electrician.

2.2. BACKUP ELECTRICAL SOURCES

A. Provide at least one backup electrical source, such as a standby or backup generator, independent of the building’s electrical systems and any other primary electrical systems established by the GC, which has sufficient capacity and rating to supply the maximum expected electrical demand of all electrical devices required to run continuously during the abatement work, including, but not limited to negative air machines, pressure differential monitoring devices, and other critical systems.

2.3. CHEMICALS

A. Maintain Safety Data Sheets (SDS) at the jobsite for all hazardous chemicals under OSHA 29 CFR 1926.59 - Hazard Communication and 8 AAC 61.1110 - Additional Hazard Communication Standards.

B. Solvent must be compatible with replacement materials, must be nonflammable, and must not contain methylene chloride, glycol ether, or halogenated hydrocarbons. Solvents used onsite must have a flash point greater than 140 degrees F.

C. Chlorinated compounds shall not be used with any product.

D. Chemical paint strippers must be bio-degradable, capable of removing existing paint layers in one application, be formulated to prevent stain, discoloration, or raising of the substrate materials, and must be acceptable to the Owner.

E. Neutralizers for paint strippers must be compatible with the substrate and suitable for use with the chemical stripper that has been applied to the surface.

2.4. DANGER SIGNS AND TAPE

A. Use danger signs and tape which comply with 29 CFR 1926.62(m), 29 CFR 1926.200, and ANSI Z535 series standards.

2.5. DUCT TAPE

A. Use commercial grade duct tape which is compatible with existing substrates and materials being used; capable of withstanding the forces encountered during the work, such as for air movement, the weight of water, equipment, personnel, and materials, from punctures, and other expected forces; and that is capable of maintaining bonding strength in wet or dry conditions throughout the temperature extremes expected to be encountered during the work.

2.6. GLOVEBAGS AND GLOVEBOXES

A. All glovebags must meet or exceed the following minimum specifications:

1. Must not be larger than 60” x 60”.

2. Must have glove-like appendages through which materials and tools may be handled.

3. Must be a minimum of 6-mil thick.

4. Must be seamless at the bottom.

5. Must be used without modification.

B. All gloveboxes must meet or exceed the following minimum specifications:

1. Must have rigid sides and made from metal or other material which can withstand the weight of the materials, tools, and water used during removal.

2. Must use a minimum of 6-mil thick polyethylene sheeting.

3. Must have a negative pressure generator capable of maintaining negative pressure in the system.

4. Must have an air filtration unit attached to the glovebox.

5. Must be fitted with gloved apertures.

6. Must have an aperture at the base of the box of adequate size to serve as a bagging outlet for waste and water.

2.7. HEPA FILTERS

A. Use only HEPA filters certified as capable of capturing particulates of 0.3 microns with 99.97% efficiency when tested in accordance with UL 586, IEST-RP-CC series, or MIL-STD-282. HEPA filters must be labeled with the certifying organization.

B. All equipment using HEPA filters must be designed so that all the air drawn into the equipment is expelled through one or more HEPA filters with none of the air leaking past any portion of the equipment prior to passing through the HEPA filters.

2.8. LABELS

A. Provide labels for each miscellaneous hazardous material waste covered by this section which conform to the requirements of 40 CFR 262.31; 49 CFR 172 Subpart E, and ANSI Z535 series standards.

2.9. LOCAL EXHAUST VENTILATION

A. Use HEPA-filtered local exhaust ventilation meeting or exceeding the performance requirements of ASSP Z9.2.

B. In addition to the above specifications, local exhaust ventilation used for any work involving mercury dust or vapor must be designed specifically for that purpose, have an activated charcoal filter, and at least one HEPA or ULPA filtration stage.

2.10. MARKINGS

A. Provide markings for each miscellaneous hazardous material waste covered by this section which conform to the requirements of 40 CFR 262.32 and 49 CFR 172 Subpart D.

2.11. NEGATIVE AIR MACHINES

A. Use HEPA-filtered negative air machines which are capable of meeting or exceeding the performance requirements for Negative Pressure Enclosure in 29 CFR 1926.1101(g)(5)(i).

B. In addition to the above specifications, negative air machines used for any work involving mercury dust or vapor must be designed specifically for that purpose, have an activated charcoal filter, and at least one HEPA or ULPA filtration stage.

2.12. PACKAGING

A. Provide packaging for each miscellaneous hazardous material waste covered by this section which conforms to the requirements of 40 CFR 262.30, 40 CFR 761 Subpart D, 49 CFR 173, 49 CFR 178, and 49 CFR 179.

2.13. PERSONAL PROTECTIVE EQUIPMENT (PPE)

A. General

1. Provide and maintain a sufficient quantity of Personal Protective Equipment (PPE) designed to protect the ears, eyes, face, head, body, lungs, and extremities to all employees engaged in miscellaneous hazardous material removal work in accordance with the requirements of 29 CFR 1926.28, 29 CFR 1926.62, 29 CFR 1926 Subpart E, 29 CFR 1926.95, and other sections of 29 CFR Part 1926 as applicable.

2. Required PPE for persons engaged in miscellaneous hazardous material removal work is anticipated to include, but not be limited to, respiratory protective devices, protective clothing, gloves, protective footwear, eye and face protections, hearing protection, fall protection, protective shields, and barriers. Additional PPE must be provided to persons engaged in miscellaneous hazardous material removal work as necessary to protect those employees due to situations such as: other conditions which may be present at the site, conditions caused as a result of the MHRC's choice of means and methods to complete the work, or due to hazards which are incidental to the miscellaneous hazardous material removal work. The MHRC must perform an assessment of the potential hazards present for each work task being performed and must provide PPE as necessary to protect employees and others from those hazards. The assessments must be documented in writing and maintained at the work site. The elements of the assessment may include, but are not limited to, those elements described in Appendix B to 29 CFR 1910.120; Appendix B to Subpart I of 29 CFR 1910; OSHA Publication 3071 for Job Hazard Analysis; or in USACE EM 385-1-1.

3. PPE must be of commercial quality, bear the manufacturer's name, and certified to meet or exceed any performance and labeling requirements specified by applicable regulations. Examples which demonstrate compliance with this requirement include, but are not limited to:
   a. Respirators which are approved for use by NIOSH in accordance with 42 CFR 84 and meet the requirements of ANSI/ISEA Z88 series standards.
   b. Protective ensembles which are certified by NFPA 1990.
   c. Protective clothing meeting the requirements of ANSI/ISEA 101.
   d. Foot protection meeting the requirements of ANSI Z41.1.
   e. Hand protection meeting the requirements of ANSI/ISEA 105.
   f. Eye and face protection meeting the requirements of ANSI/ISEA Z87.1.
   g. Head protection meeting the requirements of ANSI/ISEA Z89.1.
   h. Protective equipment meeting the requirements of ISO 13.340.

B. Provide the Owner or representative of an authority having jurisdiction with at least two complete sets of personal protective equipment as required for entry into and inspection of all areas of the regulated work area.

C. Select and use respiratory protective devices in accordance with 29 CFR 1910.134(d).

D. Breathing air quality and use must meet the requirements of 29 CFR 1910.134(i).

2.14. PLACARDS

A. Provide placards for each miscellaneous hazardous material waste covered by this section which conform to the requirements of 40 CFR 262.33 and 49 CFR 172 Subpart F.

2.15. POLYETHYLENE SHEETING

A. All polyethylene sheeting used for miscellaneous hazardous material work including, but not limited to, the containment of regulated work areas, construction of decontamination areas, isolation of HVAC systems, as a drop cloth, glovebags, disposal containers and liners, etc. must meet the following minimum requirements:

1. Be 6-mil thick or greater.

2. Must be impermeable.

3. Meet the performance requirements of ASTM E84, ASTM D4397 or ASTM D4801, and NFPA 701.

2.16. PRESSURE DIFFERENTIAL MONITORING DEVICE

A. Provide a pressure differential monitoring device for miscellaneous hazardous material work conducted in Negative Pressure Enclosures. The device must:

1. Be capable of continuous operation.

2. Be capable of measuring pressure differential in a minimum range of +0.25” to -0.25” of water column.

3. Have a continuous data logging feature which can store measurements in electronic format, record measurements on physical printouts, or both.

4. Be capable of setting alarm setpoints.

5. Have audible and visual alarm or be able to signal these alarms.

2.17. SANITATION SYSTEMS

A. Provide potable water; nonpotable water; toilets; food handling; temporary sleeping quarters; washing facilities; eating and drinking areas; vermin control; and change rooms in accordance with 29 CFR 1926.51 and 29 CFR 1926.62.

2.18. SPILL RESPONSE MATERIALS

A. Provide spill response materials including, but not limited to, containers, adsorbent, shovels, and personal protective equipment. Spill response materials must be available at all times when miscellaneous hazardous materials are being handled or transported. Spill response materials must be compatible with the type of material being handled.

2.19. VACUUMS

A. Use vacuums which have been designed with a HEPA filter as the last filtration stage for general miscellaneous hazardous materials work. The vacuum cleaner must be designed so that all the air drawn into the machine is expelled through the HEPA filter with none of the air leaking past it.

B. Vacuums used for any work involving mercury dust or vapor must be designed specifically for that purpose, have an activated charcoal filter, and at least one HEPA or ULPA filtration stage.

C. All vacuums must be operated and maintained in accordance with the manufacturer's instructions.

2.20. WARNING SIGNS AND TAPE

A. Use warning signs and tape which comply with 29 CFR 1926.200 and ANSI Z535 series standards.

PART 3 - EXECUTION

3.1. GENERAL

A. No work covered by this section may commence until all required Preconstruction Submittals have been approved, a preconstruction meeting held, the pre-work inspections have been completed, and a written authorization to proceed with the work is provided by the Owner.

B. All miscellaneous hazardous materials removal work covered by this section must be performed in accordance with the occupational health and safety regulations of 29 CFR Part 1926, 8 AAC 61, and any other applicable occupational health and safety standards. In addition to these requirements, the following requirements apply to specific miscellaneous hazardous materials:

1. All work involving universal wastes must be performed in accordance with 40 CFR 273, 18 AAC 60, and 18 AAC 62.

2. All work involving PCB-containing light ballasts must be performed in accordance with 40 CFR 761 and 18 AAC 60.

3. All work involving heat transfer fluids which are not classified as hazardous waste as defined by 40 CFR 261.3 must be performed in accordance with 40 CFR Subchapter I, 18 AAC 60, 18 AAC 72, and 18 AAC 75.

4. All work involving equipment with radioactive components must be performed in accordance with 10 CFR Chapter I, 18 AAC 60 and 18 AAC 85.

5. All work involving ozone depleting substances must be performed in accordance with 40 CFR 82.

6. All work involving hazardous wastes as defined by 40 CFR 261.3 must be performed in accordance with 40 CFR Subchapter I and 18 AAC 62.

7. All work involving lead-containing materials must be performed in accordance with 29 CFR 1926.62 and 18 AAC 60.

C. All miscellaneous hazardous materials transportation work covered by this section must be performed in accordance with the transportation regulations of 49 CFR Subchapter C and 17 AAC 25.

D. The disposal of miscellaneous hazardous materials covered by this section must be performed in accordance with the regulations of 10 CFR Chapter I, 40 CFR 82, 40 CFR Subchapter I, 40 CFR 761, 49 CFR Subchapter C, and 17 AAC 25.

E. Comply with applicable codes and requirements related to fire protection and prevention, emergency egress, first aid, and other similarly related elements.

3.2. PRE-WORK ACTIVITIES

A. The Contractor must perform the following pre-work inspections and preparations prior to starting any work covered by this section:

1. With the assistance of the Owner, determine if there are any special or unique conditions within the work area, such as controls or equipment which may require access during the miscellaneous hazardous materials removal work by non-contractor personnel, that may necessitate modification or revision of the Contractor's approved MHAP.

2. Determine the extents of each individual work area and the work to be performed within those areas, and confirm that the conditions, work areas, and work to take place is in accordance with the Contractor’s approved MHAP.

3. If the MHAP or other submittal elements required by this section require modification or revision due to discoveries made during the pre-work inspections and preparations, the Contractor must submit those modifications and/or revisions to the Owner for review and approval prior to starting work.

3.3. PRE-WORK NOTIFICATIONS AND AUTHORIZATIONS

A. This project is not anticipated to require any specific pre-work notifications or authorizations.

3.4. PRE-CLEANING AND WORK AREA PREPARATION ACTIVITIES

A. There is no requirement to remove all pre-existing dusts, debris, or components contaminated by the miscellaneous hazardous materials from the site unless noted otherwise and elsewhere in this section or the contract documents, or if it is necessary to complete the work in accordance with this section, or because the MHRC or GC determines it to be a more cost-effective means of completing the work.

B. Work involving the removal of miscellaneous hazardous materials which are intact and not contaminated by other miscellaneous hazardous materials are not required by this section to be cleaned and may be performed with moveable objects in place so long as those moveable objects are protected by at least one layer of 6-mil polyethylene sheeting.

C. Moveable objects remaining in the work area which the Owner chooses to leave in place must be removed prior to establishing the regulated area unless those objects are contaminated by any miscellaneous hazardous material covered by the work of this section. Contaminated moveable objects which are cleanable and can be decontaminated may be cleaned and removed prior to

establishing the regulated area. Noncleanable moveable objects must remain in the regulated area and be removed and disposed of after the regulated area has been established.

D. Non-moveable objects, fixed objects, and remaining exposed surfaces in the work area which are cleanable must be cleaned using industry standard protocols for the type of miscellaneous hazardous material present prior to establishing the regulated area. Non-moveable objects, fixed objects, or remaining surfaces which cannot be cleaned using industry standard protocols for the type of miscellaneous hazardous material present must be decontaminated or removed and disposed of after the regulated area has been established.

E. Objects and surfaces remaining in the work area after the precleaning activities have been completed must be covered and protected using a minimum of 2 layers of polyethylene sheeting and sealed using duct tape, spray adhesive, or other approved method.

3.5. SPECIFIC REQUIREMENTS OF THIS SECTION

A. All miscellaneous hazardous materials covered by this section which are defined as a universal waste by 40 CFR 273.9 must be managed as universal wastes by this project in accordance with 40 CFR 273. “Green-tip” or “eco” fluorescent lamps are required by this section to be managed as a universal waste, regardless of mercury content.

B. Onsite treatment as defined by 40 CFR 260.10 of any wastes covered by this section is prohibited.

C. All heat transfer fluids which are removed and will not be reused must be sent to an offsite facility for recycling.

D. Removal of poured polyurethane gym flooring classified as a hazardous waste for mercury must be performed within a Negative Pressure Enclosure (NPE) which meets or exceeds the specifications for an NPE as defined by 29 CFR 1926.1101(g)(5)(i).

1. Exceptions to this requirement:
   a. Buildings scheduled for complete demolition which will not be reoccupied after abatement and prior to demolition.
   b. Isolated removal which can be contained using a glovebag or glovebox.

2. The MHRC must maintain a sign-in sheet to record all persons entering and exiting the NPE.

E. The disturbance of lead-containing materials is subject to regulation by 29 CFR 1926.62, and it is the Contractor's responsibility to review the “trigger tasks” and other requirements of 29 CFR 1926.62 to determine which portions apply, if any, to each unique work task required by this project. The Contractor may elect to have the CPIH collect bulk samples of each affected material to determine if “detectable levels of lead” are present in the material. Any results which indicate lead above the limits of detection must be considered as having “detectable levels of lead” and therefore subject to both the monitoring and testing requirements of this contract. The maximum allowable limit of detection is 60 ppm for the purposes of determining if "detectable levels of lead" are present.

F. Negative air machines and local exhaust ventilation must not use any building HVAC systems as a means of transporting air into or out of the regulated areas; must exhaust to the exterior of the building, no less than 30 feet away from building HVAC intakes, and must be exhausted to an area with the least amount of personnel traffic to the greatest extent practicable.

G. Work conducted adjacent to occupied areas must be obscured from those occupants to the greatest extent practicable.

H. The MHRC must document all work covered by this section they perform on a written daily log.

I. Miscellaneous hazardous materials must not be stored onsite for more than 90 days and must be received by the destination facility within 180 days of being shipped off site.

3.6. MATERIALS TESTING REQUIREMENTS

A. All lead-containing waste streams must be TCLP tested in accordance with 40 CFR 261 to determine disposal requirements. Other miscellaneous hazardous materials which are managed in accordance with this section do not require additional testing.

B. Testing of the miscellaneous hazardous materials may become required for reasons encountered during the work, including, but not limited to:

1. Additional miscellaneous hazardous materials covered by this section are generated which have not had a hazardous waste determination or been otherwise characterized prior to their generation.

2. If miscellaneous hazardous materials generated by the work covered by this section cannot be managed as specified herein.

3. There is reason to believe that additional potentially hazardous constituents are present in the miscellaneous hazardous materials covered by this section which have not been previously identified and where the presence of those other constituents would affect the Contractor’s ability to properly execute any of the worker protection, packaging, labeling, transportation, disposal, documentation, or other requirements of this section.

C. The Owner must be notified immediately, and prior to, any miscellaneous hazardous materials testing being performed on the wastes covered by this section. Such notification must include the following information:

1. The reason why the miscellaneous hazardous materials cannot be managed as specified herein or otherwise require testing.

2. A sampling and analysis plan.

3.7. MONITORING

A. General

1. There are no specific monitoring requirements for work involving the removal of intact and otherwise uncontaminated miscellaneous hazardous materials covered by the work of this section unless noted otherwise. However, monitoring may be performed at the Contractor’s discretion for any reason. Such optional monitoring must come at no additional cost to the Owner.

2. Work involving the removal of non-intact or otherwise contaminated miscellaneous hazardous materials covered by the work of this section must include:

a. Monitoring of personnel performed in accordance with 10 CFR 20, 29 CFR 1926.55, and 8 AAC 61.

3. Work involving removal of the poured polyurethane gym flooring classified as a hazardous waste for mercury must include:
   a. Monitoring of personnel performed in accordance with 29 CFR 1926.55 and 8 AAC 61.
   b. Pre-work sampling to determine ambient mercury vapor concentrations. A minimum of two (2) mercury vapor samples exterior to the building and two (2) samples within the area of removal. The direct reading instrument or sampling and analytical method used must be capable of reporting mercury vapor concentrations below 60 ng/m^3. Pre-work sampling must be performed in conditions similar to those typically encountered during normal operations of the facility (e.g. normal ventilation and temperature).
   c. Monitoring of mercury vapor concentrations using a direct reading instrument at the entrance to the regulated area, waste loadout area during waste loadout operations, and at the approximate location of NPE exhaust discharge. Instruments must be set to alarm at 600 ng/m^3. If mercury vapor concentrations exceed the alarm threshold, work must be immediately stopped, and corrective actions must be taken to reduce the concentrations below alarm threshold.

4. Work involving removal of lead-containing materials subject to regulation by 29 CFR 1926.62 must include:
   a. Monitoring of personnel performed in accordance with 29 CFR 1926.62 and 8 AAC 61.
   b. Pre-work sampling to determine existing lead in dust concentrations. A minimum of two (2) wipe samples collected within the area of removal and a minimum of two (2) wipe samples collected outside of the area of removal.

5. Where work is being conducted in a facility that meets the definition of a “child occupied facility” as defined by 40 CFR 745.223 but is otherwise not subject to regulation by 40 CFR 745, and the work involves removal of the lead-containing materials subject to regulation by 29 CFR 1926.62, the following monitoring must be performed in addition to other lead-related monitoring requirements of this section:
   a. Pre-work sampling to determine existing lead in dust concentrations. A minimum of five (5) wipe samples collected within the area of removal and a minimum of five (5) wipe samples collected outside of the area of removal.

6. Wipe samples must be collected from undisturbed surfaces and must be collected from an area typically occupied during normal operations of the facility. Wipe samples must not be collected from the same location as a previous wipe sample.

7. Wipe samples must be of sufficient area to achieve a limit of detection of $<10\ \mu g/ft^2$.

8. When required, monitoring must be performed at all times work covered by this section is being conducted for the duration of the work which requires monitoring.

9. Monitoring must be performed by the CPIH.

10. The CPIH must submit lab blanks and field blanks in accordance with the requirements of the analytical method being used.

11. The quantities and types of monitoring required by this section are the minimum requirements and apply to each regulated area and each shift separately.

12. A reduction of monitoring may be permitted at the discretion of the Owner upon written request from the CPIH. Modifications to any monitoring procedures required by this section are prohibited unless the Owner issues a written authorization stating their acceptance of the proposed modifications. No modifications are allowed prior to receiving such authorization.

3.8. WORK AREA INSPECTIONS AND CLEARANCES

A. General:

1. All clearance monitoring and final visual inspections must be performed by the IIHT.

2. Final visual inspections must be performed at the completion of all miscellaneous hazardous materials removal activities, including for intact removal, exterior removal, and any other work which disturbs and removes any quantity of miscellaneous hazardous material from any location of the site.

3. All final visual inspections and clearance monitoring must be documented in writing.

4. Clearance monitoring is only required for work involving the complete removal of poured polyurethane gym flooring classified as a hazardous waste for mercury unless noted otherwise. There are no clearance monitoring requirements for work involving the partial removal of poured polyurethane gym flooring classified as a hazardous waste for mercury or for the removal of any other miscellaneous hazardous material covered by this section when the work is performed in accordance with the requirements of this section.

5. The IIHT must submit lab blanks and field blanks in accordance with the requirements of the analytical method being used.

6. The quantities and types of clearance monitoring required by this section are the minimum requirements and apply to each regulated area separately.

7. Onsite analysis of clearance samples is prohibited.

8. If any of the clearance samples fails clearance criteria, the work area must be recleaned, receive an additional final visual inspection, and clearance monitoring repeated.

9. All regulated work areas must retain their status as a regulated work area until the Owner provides written notice that the work area may be deregulated.

B. Work involving complete removal of poured polyurethane gym flooring classified as a hazardous waste for mercury.

1. Clearance monitoring:
   a. After satisfactory completion of a final visual inspection, the work area must be sealed and ventilation shut off for a period of at least 24 hours prior to starting clearance monitoring.
   b. Temperatures inside of the removal boundaries must be maintained at a minimum of 70 degrees Fahrenheit or the maximum space design temperature, whichever is greater, for the duration of the sampling period.
   c. Ventilation of the space within the removal boundaries during the sampling period is prohibited.

d. All clearance monitoring samples must be collected simultaneously and in one sampling period.
e. All samples must be collected from within a space located 30”-40” above the floor surface.
f. A minimum of five (5) mercury vapor samples must be collected from within the removal boundaries for work involving removal of <1,000 square feet. Collect at least one (1) additional sample for each additional 400 square feet of material removed.
g. A minimum of two (2) mercury vapor samples must be collected from spaces typically occupied during normal use of the facility near, but outside of, the removal boundaries.
h. A minimum of two (2) mercury vapor samples must be collected from the exterior of the building.
i. To achieve satisfactory clearance criteria, mercury vapor concentrations for each sample must be less than 60 ng/m^3. If ambient exterior mercury vapor concentrations are greater than 60 ng/m^3, then satisfactory clearance criteria is achieved when each sample is no greater than 110% of the ambient exterior mercury vapor concentrations.

C. Work involving removal of lead-containing materials subject to regulation by 29 CFR 1926.62.

1. At the completion of the lead removal activities, a minimum of two (2) wipe samples collected within the area of removal and a minimum of two (2) wipe samples collected outside of the area of removal. To achieve satisfactory clearance criteria, each of the samples collected must be <200 $\mu g/ft^2$ or less than the existing lead in dust concentrations reported by the pre-work samples, whichever is lower.

2. At the completion of the entire project, a minimum of three (3) wipe samples collected within the area of work for the entire project and a minimum of three (3) wipe samples collected outside of the area of work for the entire project in areas used by workers walking to and from the work area, as a contractor staging area, or other areas which were used by the Contractor during the work. To achieve satisfactory clearance criteria, each of the samples collected must be <10 $\mu g/ft^2$.

D. Where work is being conducted in a facility that meets the definition of a “child occupied facility” as defined by 40 CFR 745.223 but is otherwise not subject to regulation by 40 CFR 745, and the work involves removal of the lead-containing materials subject to regulation by 29 CFR 1926.62.

1. At the completion of the lead removal activities, a minimum of two (2) wipe samples collected within the area of removal and a minimum of two (2) wipe samples collected outside of the area of removal. To achieve satisfactory clearance criteria, each of the samples collected must be <200 $\mu g/ft^2$.

2. At the completion of the entire project, clearance monitoring must be performed using the protocols defined in Chapter VI “Clearance Dust Sampling” found in Chapter 15 of the “Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing”. To achieve satisfactory clearance criteria, each of the samples collected must be less than the published Lead Dust Hazard Standards criteria current at the time of completion of the work.

E. Where work is being conducted in a facility that meets the definition of a “child occupied facility” as defined by 40 CFR 745.223 and is subject to regulation by 40 CFR 745 due to the quantities of lead-based paints being removed.

1. At the completion of the lead removal activities, a minimum of two (2) wipe samples collected within the area of removal and a minimum of two (2) wipe samples collected

outside of the area of removal. To achieve satisfactory clearance criteria, each of the samples collected must be <200 µg/ft^2.

2. At the completion of the entire project, clearance monitoring must be performed using the protocols defined in Chapter VI “Clearance Dust Sampling” found in Chapter 15 of the “Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing”. To achieve satisfactory clearance criteria, each of the samples collected must be less than the published Lead Dust Hazard Standards criteria current at the time of completion of the work.

3.9. POST-WORK ACTIVITIES

A. The MHRC must visually inspect areas impacted by their work activities for potential dust, debris, or contamination resulting from their miscellaneous hazardous materials work that may have been concealed after all regulated area protections, equipment, supplies, and other objects within their possession have been removed from those areas. If any dust, debris, or contamination resulting from their miscellaneous hazardous materials work is noted, the MHRC must promptly clean up the dust or debris and record those actions on their daily report.

B. The GC, MHRC, and Owner must perform a final walk-thru of the work areas to inspect for any damage that may have occurred as a result of the MHRC’s activities at the site.

C. The MHRC must submit all documentation required by this section for Owner review and approval.

D. After the MHRC has demobilized from the site and all required submittals approved, then the requirements of this section will have been satisfied and final payment can be made.

END OF SECTION

STEEL DECKING

PART 1 - GENERAL

1.1 NOTIFICATIONS

A. Notification of Potential Hazards: Asbestos, lead and other potentially hazardous materials are present in the building that may impact the work of all trades. Regulated air contaminates, including asbestos and lead are also present in the settled and concealed dust in and on architectural, structural, mechanical and electrical components or systems throughout the building. All trades shall coordinate with other trades and conduct their work to prevent worker exposure or site contamination. Refer to Specification Divisions 0, 1 and 2 for specific information concerning disturbing, removing and disposing of these materials and the installation of new materials or components. This notification is provided in accordance with the EPA and OSHA requirements.

B. Notification of Child Occupied Facility: Portions of this building are classified as a Child Occupied Facility in accordance with 40 CFR 745 and lead-based paints may be present on components to be disturbed in those areas. Personnel performing work in these areas must comply with the requirements of 40 CFR 745, including training, work practices and cleaning of the work area. Refer to Specification Divisions 0, 1 and 2 for specific information concerning disturbing, removing and disposing of lead materials and the installation of new materials or components. This notification is provided in accordance with EPA and OSHA requirements.

1.2 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.3 SUMMARY

A. Section Includes:

1. Roof deck.

1.4 ACTION SUBMITTALS

A. Product Data: For each type of deck, accessory, and product indicated.

1.5 INFORMATIONAL SUBMITTALS

A. Welding certificates.

B. Product Certificates: For each type of steel deck.

C. Evaluation Reports: For steel deck, from ICC-ES.

D. Field quality-control reports.

1.6 QUALITY ASSURANCE

A. Testing Agency Qualifications: Qualified according to ASTM E 329 for testing indicated.

B. Welding Qualifications: Qualify procedures and personnel according to AWS D1.3/D1.3M, "Structural Welding Code - Sheet Steel."

C. FM Global Listing: Provide steel roof deck evaluated by FM Global and listed in its "Approval Guide, Building Materials" for Class 1 fire rating and Class 1-90 windstorm ratings.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Protect steel deck from corrosion, deformation, and other damage during delivery, storage, and handling.

B. Stack steel deck on platforms or pallets and slope to provide drainage. Protect with a waterproof covering and ventilate to avoid condensation.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. AISI Specifications: Comply with calculated structural characteristics of steel deck according to AISI's "North American Specification for the Design of Cold-Formed Steel Structural Members."

B. Fire-Resistance Ratings: Comply with ASTM E 119; testing by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.

1. Indicate design designations from UL's "Fire Resistance Directory" or from the listings of another qualified testing agency.

2.2 ROOF DECK

A. Roof Deck: Fabricate panels, without top-flange stiffening grooves, to comply with "SDI Specifications and Commentary for Steel Roof Deck," in SDI Publication No. 31, and with the following:

1. Galvanized-Steel Sheet: ASTM A 653/A 653M, Structural Steel (SS), Grade 50, zinc coating.
2. Deck Profile: As indicated.
3. Profile Depth: As indicated.
4. Span Condition: Triple span or more.
5. Side Laps: As indicated.

2.3 ACCESSORIES

A. General: Provide manufacturer's standard accessory materials for deck that comply with requirements indicated.

B. Mechanical Fasteners: Corrosion-resistant, low-velocity, power-actuated or pneumatically driven carbon-steel fasteners; or self-drilling, self-threading screws.

C. Side-Lap Fasteners: Corrosion-resistant, hexagonal washer head; self-drilling, carbon-steel screws, No. 10 minimum diameter.

D. Flexible Closure Strips: Vulcanized, closed-cell, synthetic rubber.

E. Miscellaneous Sheet Metal Deck Accessories: Steel sheet, minimum yield strength of 33,000 psi, not less than 0.0359-inch design uncoated thickness, of same material and finish as deck; of profile indicated or required for application.

F. Weld Washers: Uncoated steel sheet, shaped to fit deck rib, 0.0598 inch thick, with factory-punched hole of 3/8-inch minimum diameter.

G. Galvanizing Repair Paint: ASTM A 780/A 780M.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine supporting frame and field conditions for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION, GENERAL

A. Install deck panels and accessories according to applicable specifications and commentary in SDI Publication No. 31, manufacturer's written instructions, and requirements in this Section.

B. Install temporary shoring before placing deck panels if required to meet deflection limitations.

C. Locate deck bundles to prevent overloading of supporting members.

D. Place deck panels on supporting frame and adjust to final position with ends accurately aligned and bearing on supporting frame before being permanently fastened. Do not stretch or contract side-lap interlocks.

1. Align cellular deck panels over full length of cell runs and align cells at ends of abutting panels.

E. Place deck panels flat and square and fasten to supporting frame without warp or deflection.

F. Cut and neatly fit deck panels and accessories around openings and other work projecting through or adjacent to deck.

G. Provide additional reinforcement and closure pieces at openings as required for strength, continuity of deck, and support of other work.

H. Comply with AWS requirements and procedures for manual shielded metal arc welding, appearance and quality of welds, and methods used for correcting welding work.

I. Mechanical fasteners may be used in lieu of welding to fasten deck. Locate mechanical fasteners and install according to deck manufacturer's written instructions.

3.3 ROOF-DECK INSTALLATION

A. Fasten roof-deck panels to steel supporting members by arc spot (puddle) welds of the surface diameter indicated or arc seam welds with an equal perimeter that is not less than 1-1/2 inches long, and as follows:

1. Weld Diameter: As indicated nominal.
2. Weld Spacing: Weld edge and interior ribs of deck units with a minimum of two welds per deck unit at each support. Space welds as indicated.
3. Weld Washers: Install weld washers at each weld location.

B. Side-Lap and Perimeter Edge Fastening: Fasten side laps and perimeter edges of panels between supports, at intervals not exceeding the lesser of one-half of the span or 18 inches, and as follows:

1. Mechanically fasten with self-drilling, No. 10 diameter or larger, carbon-steel screws.
2. Mechanically clinch or button punch.
3. Fasten with a minimum of 1-1/2-inch-long welds.

C. End Bearing: Install deck ends over supporting frame with a minimum end bearing of 1-1/2 inches, with end joints as follows:

1. End Joints: Lapped 2 inches minimum.

D. Roof Sump Pans and Sump Plates: Install over openings provided in roof deck and weld flanges to top of deck. Space welds not more than 12 inches apart with at least one weld at each corner.

1. Install reinforcing channels or zees in ribs to span between supports and weld.

E. Miscellaneous Roof-Deck Accessories: Install ridge and valley plates, finish strips, end closures, and reinforcing channels according to deck manufacturer's written instructions. Weld or mechanically fasten to substrate to provide a complete deck installation.

1. Weld cover plates at changes in direction of roof-deck panels unless otherwise indicated.

F. Flexible Closure Strips: Install flexible closure strips over partitions, walls, and where indicated. Install with adhesive according to manufacturer's written instructions to ensure complete closure.

3.4 FIELD QUALITY CONTROL

A. Testing Agency: Owner will engage a qualified testing agency to perform tests and inspections.

B. Field welds will be subject to inspection.

C. Prepare test and inspection reports.

3.5 PROTECTION

A. Galvanizing Repairs: Prepare and repair damaged galvanized coatings on both surfaces of deck with galvanized repair paint according to ASTM A 780/A 780M and manufacturer's written instructions.

END OF SECTION

METAL FABRICATIONS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

B. Notification of Potential Hazards: Asbestos, lead and other potentially hazardous materials are present in the building that may impact the work of all trades. Regulated air contaminants, including asbestos and lead, are also present in settled and concealed dust in and on architectural, structural, mechanical and electrical components or systems throughout the building. All trades shall coordinate with other trades and conduct their work to prevent worker exposure or site contamination. Refer to Specification Divisions 0, 1 and 2 for specific information concerning disturbing, removing and disposing of these materials and the installation of new materials or components. This notification is provided in accordance with EPA and OSHA requirements.

C. Notification of Child Occupied Facility: Portions of this building are classified as a Child Occupied Facility in accordance with 40 CFR 745 and lead-based paints may be present on components to be disturbed in those areas. Personnel performing work in these areas must comply with the requirements of 40 CFR 745, including training, work practices and cleaning of the work area. Refer to Specification Divisions 0, 1 and 2 for specific information concerning disturbing, removing and disposing of lead materials and the installation of new materials or components. This notification is provided in accordance with EPA and OSHA requirements.

1.2 SUMMARY

A. Section Includes:

1. Steel framing and supports for applications where framing and supports are not specified in other Sections.
2. Slotted channel framing.
3. Metal ladders.
4. Formed-metal plank gratings.

1.3 ACTION SUBMITTALS

A. Shop Drawings: Show fabrication and installation details. Include plans, elevations, sections, and details of metal fabrications and their connections. Show anchorage and accessory items. Provide Shop Drawings for the following:

1. Steel framing and supports for applications where framing and supports are not specified in other Sections.
2. Metal ladders.

1.4 INFORMATIONAL SUBMITTALS

A. Welding certificates.

1.5 QUALITY ASSURANCE

A. Welding Qualifications: Qualify procedures and personnel in accordance with AWS D1.1/D1.1M, "Structural Welding Code - Steel."

1. AWS D1.1/D1.1M.
2. AWS D1.3/D1.3M.

1.6 FIELD CONDITIONS

A. Field Measurements: Verify actual locations of walls, decks, and other construction contiguous with metal fabrications by field measurements before fabrication.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Structural Performance: Gratings to withstand the effects of gravity loads and the following loads and stresses within limits and under conditions indicated:

1. Walkways and Elevated Platforms Other Than Exits: Uniform load of 60 lbf/sq. ft.

2.2 METALS

A. Metal Surfaces, General: Provide materials with smooth, flat surfaces unless otherwise indicated. For metal fabrications exposed to view in the completed Work, provide materials without seam marks, roller marks, rolled trade names, or blemishes.

B. Plates, Shapes, and Bars: ASTM A36/A36M.

C. Slotted Channel Framing: Cold-formed metal box channels (struts) complying with MFMA-4.

1. Size of Channels: 1-5/8 by 1-5/8 inches.
2. Material: Cold-rolled steel, ASTM A1008/A1008M, structural steel, Grade 33; 0.105-inch minimum thickness.

D. Galvanized-Steel Sheet: ASTM A653/A653M, structural quality, Grade 33, with G90 coating.

E. Pipe: ASTM A53/A53M, Type F or Type S, Grade A, Standard Weight (Schedule 40), unless another grade and weight are required by structural loads.

2.3 FORMED-METAL PLANK GRATINGS

A. C-Shaped Channels: Rolled from heavy sheet metal of thickness indicated and punched in serrated diamond shape to produce raised slip-resistant surface and drainage holes.

1. Channel Width: As indicated.
2. Channel Depth: 2 inches.
3. Material: 0.135-inch- thick, hot-dip galvanized-steel sheet.

2.4 FASTENERS

A. General: Unless otherwise indicated, provide zinc-plated fasteners with coating complying with ASTM B633 or ASTM F1941/F1941M, Class Fe/Zn 5, at exterior walls. Select fasteners for type, grade, and class required.

B. Anchors, General: Capable of sustaining, without failure, a load equal to six times the load imposed when installed in unit masonry and four times the load imposed when installed in concrete, as determined by testing in accordance with ASTM E488/E488M, conducted by a qualified independent testing agency.

C. Post-Installed Anchors: Fastener systems with working capacity greater than or equal to the design load, according to an evaluation report acceptable to authorities having jurisdiction, based on ICC-ES AC193.

1. Material for Interior Locations: Carbon-steel components zinc-plated to comply with ASTM B633 or ASTM F1941/F1941M, Class Fe/Zn 5, unless otherwise indicated.

2.5 FABRICATION, GENERAL

A. Shop Assembly: Preassemble items in the shop to greatest extent possible. Disassemble units only as necessary for shipping and handling limitations. Use connections that maintain structural value of joined pieces. Clearly mark units for reassembly and coordinated installation.

B. Cut, drill, and punch metals cleanly and accurately. Remove burrs and ease edges to a radius of approximately 1/32 inch unless otherwise indicated. Remove sharp or rough areas on exposed surfaces.

C. Form bent-metal corners to smallest radius possible without causing grain separation or otherwise impairing work.

D. Form exposed work with accurate angles and surfaces and straight edges.

E. Weld corners and seams continuously to comply with the following:

1. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.
2. Obtain fusion without undercut or overlap.
3. Remove welding flux immediately.
4. At exposed connections, finish exposed welds and surfaces smooth and blended so no roughness shows after finishing.

F. Form exposed connections with hairline joints, flush and smooth, using concealed fasteners or welds where possible. Where exposed fasteners are required, use Phillips flat-head (countersunk) fasteners unless otherwise indicated. Locate joints where least conspicuous.

G. Cut, reinforce, drill, and tap metal fabrications as indicated to receive finish hardware, screws, and similar items.

H. Provide for anchorage of type indicated; coordinate with supporting structure. Space anchoring devices to secure metal fabrications rigidly in place and to support indicated loads.

2.6 MISCELLANEOUS FRAMING AND SUPPORTS

A. General: Provide steel framing and supports not specified in other Sections as needed to complete the Work.

B. Fabricate units from steel shapes, plates, and bars of welded construction unless otherwise indicated. Fabricate to sizes, shapes, and profiles indicated and as necessary to receive adjacent construction.

2.7 METAL LADDERS

A. General:

1. Comply with ANSI A14.3.

B. Steel Ladders:

1. Space siderails 24 inches apart unless otherwise indicated.
2. Siderails: Continuous, 1/2-by-2-1/2-inch steel flat bars, with eased edges or steel angles as indicated on Drawings.
3. Rungs: 1-inch diameter, steel bars.
4. Fit rungs in centerline of siderails; plug-weld and grind smooth on outer rail faces.
5. Support each ladder at top and bottom and not more than 60 inches o.c. with welded or bolted steel brackets.
6. Prime interior ladders, including brackets and fasteners, Universal primer.
7. Exterior Ladders and Guardrails: Thermal spray coating consisting of metalized aluminum and zinc per SSPC-CS 23.00/AWS C2.23M/NACE No. 12.

2.8 GENERAL FINISH REQUIREMENTS

A. Finish metal fabrications after assembly.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

A. Cutting, Fitting, and Placement: Perform cutting, drilling, and fitting required for installing metal fabrications. Set metal fabrications accurately in location, alignment, and elevation; with edges and surfaces level, plumb, true, and free of rack; and measured from established lines and levels.

B. Fit exposed connections accurately together to form hairline joints. Weld connections that are not to be left as exposed joints but cannot be shop welded because of shipping size limitations. Do not weld, cut, or abrade surfaces of exterior units that have been thermal spray coated after fabrication and are for bolted or screwed field connections.

C. Fastening to In-Place Construction: Provide anchorage devices and fasteners where metal fabrications are required to be fastened to in-place construction. Provide threaded fasteners for use with concrete and wood screws, and other connectors.

END OF SECTION

MISCELLANEOUS ROUGH CARPENTRY

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

B. Notification of Potential Hazards: Asbestos, lead and other potentially hazardous materials are present in the building that may impact the work of all trades. Regulated air contaminants, including asbestos and lead, are also present in settled and concealed dust in and on architectural, structural, mechanical and electrical components or systems throughout the building. All trades shall coordinate with other trades and conduct their work to prevent worker exposure or site contamination. Refer to Specification Divisions 0, 1 and 2 for specific information concerning disturbing, removing and disposing of these materials and the installation of new materials or components. This notification is provided in accordance with EPA and OSHA requirements.

C. Notification of Child Occupied Facility: Portions of this building are classified as a Child Occupied Facility in accordance with 40 CFR 745 and lead-based paints may be present on components to be disturbed in those areas. Personnel performing work in these areas must comply with the requirements of 40 CFR 745, including training, work practices and cleaning of the work area. Refer to Specification Divisions 0, 1 and 2 for specific information concerning disturbing, removing and disposing of lead materials and the installation of new materials or components. This notification is provided in accordance with EPA and OSHA requirements.

1.2 SUMMARY

A. Section Includes:

1. Framing with dimension lumber.
2. Wood blocking and nailers.
3. Metal framing anchors.

B. Related Requirements:

1. Section 06 16 00 "Sheathing".

1.3 DEFINITIONS

A. Dimension Lumber: Lumber of 2 inches nominal or greater size but less than 5 inches nominal size in least dimension.

1.4 ACTION SUBMITTALS

A. Product Data: For each type of process and factory-fabricated product. Indicate component materials and dimensions and include construction and application details.

1. Include data for wood-preservative treatment from chemical treatment manufacturer and certification by treating plant that treated materials comply with requirements. Indicate type of preservative used and net amount of preservative retained.

1.5 INFORMATIONAL SUBMITTALS

A. Evaluation Reports: For the following, from ICC-ES:

1. Preservative-treated wood.
2. Metal framing anchors.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Stack lumber flat with spacers beneath and between each bundle to provide air circulation. Protect lumber from weather by covering with waterproof sheeting, securely anchored. Provide for air circulation around stacks and under coverings.

PART 2 - PRODUCTS

2.1 WOOD PRODUCTS, GENERAL

A. Lumber: DOC PS 20 and applicable rules of grading agencies indicated. If no grading agency is indicated, provide lumber that complies with the applicable rules of any rules-writing agency certified by the ALSC Board of Review. Provide lumber graded by an agency certified by the ALSC Board of Review to inspect and grade lumber under the rules indicated.

1. Factory mark each piece of lumber with grade stamp of grading agency.
2. Dress lumber, S4S, unless otherwise indicated.

B. Maximum Moisture Content of Lumber: 25 percent.

2.2 WOOD-PRESERVATIVE-TREATED MATERIALS

A. Preservative Treatment by Pressure Process: AWPA U1; Use Category UC2 for interior construction not in contact with ground.

1. Preservative Chemicals: Acceptable to authorities having jurisdiction and containing no arsenic or chromium.

B. Mark lumber with treatment quality mark of an inspection agency approved by the ALSC Board of Review.

C. Application: Treat all miscellaneous carpentry above the roof deck elevation.

2.3 MISCELLANEOUS LUMBER

A. General: Provide miscellaneous lumber indicated and lumber for support or attachment of other construction, including the following:

1. Blocking.
2. Nailers.

B. Dimension Lumber Items: Standard, Stud, or No. 3 grade lumber of any of the following species:

1. Hem-fir (north); NLGA.
2. Spruce-pine-fir; NLGA.
3. Hem-fir; WCLIB or WWPA.
4. Western woods; WCLIB or WWPA.
5. Northern species; NLGA.

C. For blocking not used for attachment of other construction, Utility, Stud, or No. 3 grade lumber of any species may be used provided that it is cut and selected to eliminate defects that will interfere with its attachment and purpose.

D. For blocking and nailers used for attachment of other construction, select and cut lumber to eliminate knots and other defects that will interfere with attachment of other work.

E. Top of Parapet Shims: Western red cedar; NLGA, WCLIB, or WWPA Grade B bevel siding, S1S2E.

2.4 FASTENERS

A. General: Provide fasteners of size and type indicated that comply with requirements specified in this article for material and manufacture.

1. Where carpentry is pressure-preservative treated, provide fasteners with hot-dip zinc coating complying with ASTM A153/A153M.

B. Nails, Brads, and Staples: ASTM F1667.

C. Screws for Fastening to Metal Framing: ASTM C1002, length as recommended by screw manufacturer for material being fastened.

D. Post-Installed Anchors: Fastener systems with an evaluation report acceptable to authorities having jurisdiction, based on ICC-ES AC193 as appropriate for the substrate.

1. Material: Carbon-steel components, zinc plated to comply with ASTM B633, Class Fe/Zn 5.

2.5 METAL FRAMING ANCHORS

A. Hot-Dip, Heavy-Galvanized Steel Sheet: ASTM A653/A653M; Structural Steel (SS), high-strength low-alloy steel Type A (HSLAS Type A), or high-strength low-alloy steel Type B (HSLAS Type B); G185 coating designation; and not less than 0.036 inch thick.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

A. Framing Standard: Comply with AF&PA's WCD 1, "Details for Conventional Wood Frame Construction," unless otherwise indicated.

B. Set carpentry to required levels and lines, with members plumb, true to line, cut, and fitted. Fit carpentry accurately to other construction. Locate nailers, blocking, and similar supports to comply with requirements for attaching other construction.

C. Install metal framing anchors to comply with manufacturer's written instructions. Install fasteners through each fastener hole.

D. Sort and select lumber so that natural characteristics do not interfere with installation or with fastening other materials to lumber. Do not use materials with defects that interfere with function of member or pieces that are too small to use with minimum number of joints or optimum joint arrangement.

E. Comply with AWPA M4 for applying field treatment to cut surfaces of preservative-treated lumber.

1. Use copper naphthenate for items not continuously protected from liquid water.

F. Where wood-preservative-treated lumber is installed adjacent to metal decking, install continuous flexible flashing separator between wood and metal decking.

G. Securely attach carpentry work to substrate by anchoring and fastening as indicated, complying with the following:

1. Table 2304.9.1, "Fastening Schedule," in ICC's International Building Code.
2. Table R602.3(1), "Fastener Schedule for Structural Members," and Table R602.3(2), "Alternate Attachments," in ICC's International Residential Code for One- and Two-Family Dwellings.
3. ICC-ES evaluation report for fastener.

H. Use steel common nails unless otherwise indicated. Select fasteners of size that will not fully penetrate members where opposite side will be exposed to view or will receive finish materials. Make tight connections between members. Install fasteners without splitting wood. Drive nails snug but do not countersink nail heads unless otherwise indicated.

3.2 INSTALLATION OF WOOD BLOCKING AND NAILER

A. Install where indicated and where required for attaching other work. Form to shapes indicated and cut as required for true line and level of attached work. Coordinate locations with other work involved.

B. Attach items to substrates to support applied loading. Recess bolts and nuts flush with surfaces unless otherwise indicated.

END OF SECTION

SHEATHING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

B. Notification of Potential Hazards: Asbestos, lead and other potentially hazardous materials are present in the building that may impact the work of all trades. Regulated air contaminants, including asbestos and lead, are also present in settled and concealed dust in and on architectural, structural, mechanical and electrical components or systems throughout the building. All trades shall coordinate with other trades and conduct their work to prevent worker exposure or site contamination. Refer to Specification Divisions 0, 1 and 2 for specific information concerning disturbing, removing and disposing of these materials and the installation of new materials or components. This notification is provided in accordance with EPA and OSHA requirements.

C. Notification of Child Occupied Facility: Portions of this building are classified as a Child Occupied Facility in accordance with 40 CFR 745 and lead-based paints may be present on components to be disturbed in those areas. Personnel performing work in these areas must comply with the requirements of 40 CFR 745, including training, work practices and cleaning of the work area. Refer to Specification Divisions 0, 1 and 2 for specific information concerning disturbing, removing and disposing of lead materials and the installation of new materials or components. This notification is provided in accordance with EPA and OSHA requirements.

1.2 SUMMARY

A. Section Includes:

1. Plywood wall sheathing.

B. Related Requirements:

1. Section 07 25 00 "Weather Barriers" for water-resistive barrier applied over wall sheathing.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of process and factory-fabricated product. Indicate component materials and dimensions and include construction and application details.

1. Include data for wood-preservative treatment from chemical treatment manufacturer and certification by treating plant that treated plywood complies with requirements. Indicate type of preservative used and net amount of preservative retained.
2. For products receiving waterborne treatment, include statement that moisture content of treated materials was reduced to levels specified before shipment to Project site.

1.4 INFORMATIONAL SUBMITTALS

A. Evaluation Reports: For the following, from ICC-ES:

1. Wood-preservative-treated plywood.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Stack panels flat with spacers beneath and between each bundle to provide air circulation. Protect sheathing from weather by covering with waterproof sheeting, securely anchored. Provide for air circulation around stacks and under coverings.

PART 2 - PRODUCTS

2.1 WOOD PANEL PRODUCTS

A. Factory mark panels to indicate compliance with applicable standard.

2.2 PRESERVATIVE-TREATED PLYWOOD

A. Preservative Treatment by Pressure Process: AWPA U1; Use Category UC2 for interior construction not in contact with ground, and use Category UC3b for exterior construction not in contact with ground.

B. Mark plywood with appropriate classification marking of an inspection agency acceptable to authorities having jurisdiction.

C. Application: Treat items indicated on Drawings, and plywood in contact with concrete or used with roofing, flashings, vapor retarders, and waterproofings.

2.3 SHEATHING

A. Plywood Sheathing: DOC PS 1, Exposure 1 Exterior sheathing.

1. Wall Span Rating: Not less than 32/16.
2. Nominal Thickness: As indicated on Drawings.
3. Table 2304.9.1, "Fastening Schedule," in ICC's International Building Code and indicated on Drawings.
4. Table R602.3(1), "Fastener Schedule for Structural Members," and Table R602.3(2), "Alternate Attachments," in ICC's International Residential Code for One- and Two-Family Dwellings.
5. ICC-ES evaluation report for fastener.

2.4 FASTENERS

A. General: Provide fasteners of size and type indicated that comply with requirements specified in this article for material and manufacture.

1. For wall sheathing, provide fasteners with hot-dip zinc coating complying with ASTM A153/A153M.

B. Nails, Brads, and Staples: ASTM F1667.

C. Screws for Fastening Wood Structural Panels to Cold-Formed Metal Framing: ASTM C954, except with wafer heads and reamer wings, length as recommended by screw manufacturer for material being fastened.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

A. Do not use materials with defects that impair quality of sheathing or pieces that are too small to use with minimum number of joints or optimum joint arrangement. Arrange joints so that pieces do not span between fewer than three support members.

B. Cut panels at penetrations, edges, and other obstructions of work; fit tightly against abutting construction unless otherwise indicated.

C. Securely attach to substrate by fastening as indicated, complying with the following:

1. Table 2304.9.1, "Fastening Schedule," in the ICC's International Building Code.
2. Table R602.3(1), "Fastener Schedule for Structural Members," and Table R602.3(2), "Alternate Attachments," in the ICC's International Residential Code for One- and Two-Family Dwellings.
3. ICC-ES evaluation report for fastener.

D. Use common wire nails. Select fasteners of size that will not fully penetrate members where opposite side will be exposed to view or will receive finish materials. Make tight connections. Install fasteners without splitting wood.

3.2 WOOD STRUCTURAL PANEL INSTALLATION

A. General: Comply with applicable recommendations in APA Form No. E30, "Engineered Wood Construction Guide," for types of structural-use panels and applications indicated.

B. Fastening Methods: Fasten panels as indicated below:

1. Wall Sheathing:

a. Screw to cold-formed metal framing.
b. Space panels 1/8 inch apart at edges and ends.

END OF SECTION

THERMAL INSULATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

B. Notification of Potential Hazards: Asbestos, lead and other potentially hazardous materials are present in the building that may impact the work of all trades. Regulated air contaminants, including asbestos and lead, are also present in settled and concealed dust in and on architectural, structural, mechanical and electrical components or systems throughout the building. All trades shall coordinate with other trades and conduct their work to prevent worker exposure or site contamination. Refer to Specification Divisions 0, 1 and 2 for specific information concerning disturbing, removing and disposing of these materials and the installation of new materials or components. This notification is provided in accordance with EPA and OSHA requirements.

C. Notification of Child Occupied Facility: Portions of this building are classified as a Child Occupied Facility in accordance with 40 CFR 745 and lead-based paints may be present on components to be disturbed in those areas. Personnel performing work in these areas must comply with the requirements of 40 CFR 745, including training, work practices and cleaning of the work area. Refer to Specification Divisions 0, 1 and 2 for specific information concerning disturbing, removing and disposing of lead materials and the installation of new materials or components. This notification is provided in accordance with EPA and OSHA requirements.

1.2 SUMMARY

A. Section Includes:

1. Glass-fiber blanket insulation.

B. Related Requirements:

1. Section 07 24 19 “Water-Drainage Exterior Insulation and Finish System (EIFS) for EIFS-clad barrier-wall assemblies.
2. Section 07 53 23 "Ethylene-Propylene-Diene-Monomer (EPDM) Roofing" for insulation specified as part of roofing construction.

1.3 ACTION SUBMITTALS

A. Product Data: For the following:

1. Glass-fiber blanket insulation.

1.4 DELIVERY, STORAGE, AND HANDLING

A. Protect insulation materials from physical damage and from deterioration due to moisture, soiling, and other sources. Store inside and in a dry location. Comply with manufacturer's written instructions for handling, storing, and protecting during installation.

PART 2 - PRODUCTS

2.1 GLASS-FIBER BLANKET INSULATION

A. Glass-Fiber Blanket Insulation, Unfaced: ASTM C665, Type I; passing ASTM E136 for combustion characteristics.

1. Flame-Spread Index: Not more than 25 when tested in accordance with ASTM E84.
2. Smoke-Developed Index: Not more than 50 when tested in accordance with ASTM E84.
3. Labeling: Provide identification of mark indicating R-value of each piece of insulation 12 inches and wider in width.

2.2 ACCESSORIES

A. Insulation for Miscellaneous Voids:

1. Spray Polyurethane Foam Insulation: ASTM C1029, Type II, closed cell, with maximum flame-spread and smoke-developed indexes of 75 and 450, respectively, per ASTM E84.

PART 3 - EXECUTION

3.1 PREPARATION

A. Clean substrates of substances that are harmful to insulation, including removing projections capable of puncturing insulation or vapor retarders, or that interfere with insulation attachment.

3.2 INSTALLATION, GENERAL

A. Comply with insulation manufacturer's written instructions applicable to products and applications.

B. Install insulation that is undamaged, dry, and unsoiled and that has not been left exposed to ice, rain, or snow at any time.

C. Extend insulation to envelop entire area to be insulated. Fit tightly around obstructions and fill voids with insulation. Remove projections that interfere with placement.

D. Provide sizes to fit applications and selected from manufacturer's standard thicknesses, widths, and lengths. Apply single layer of insulation units unless multiple layers are otherwise shown or required to make up total thickness or to achieve R-value.

E. For preformed insulating units, provide sizes to fit applications indicated and selected from manufacturer's standard thicknesses, widths, and lengths. Apply single layer of insulation units

to produce thickness indicated unless multiple layers are otherwise shown or required to make up total thickness.

F. Fill all joints greater than 1/4-inch with same material.

G. Do not compress insulation.

H. Fit insulation tightly on cavities and tightly to exterior side of mechanical and electrical services within plane of insulation.

3.3 INSTALLATION OF INSULATION IN FRAMED CONSTRUCTION

A. Blanket Insulation: Install in cavities formed by framing members according to the following requirements:

1. Use insulation widths and lengths that fill the cavities formed by framing members. If more than one length is required to fill the cavities, provide lengths that will produce a snug fit between ends.
2. Place insulation in cavities formed by framing members to produce a friction fit between edges of insulation and adjoining framing members.

B. Miscellaneous Voids: Install insulation in miscellaneous voids and cavity spaces where required to prevent gaps in insulation using the following materials:

1. Glass-Fiber Insulation: Compact to approximately 40 percent of normal maximum volume equaling a density of approximately 2.5 lb/cu. ft.
2. Spray Polyurethane Insulation: Apply according to manufacturer's written instructions.

3.4 PROTECTION

A. Protect installed insulation from damage due to harmful weather exposures, physical abuse, and other causes.

B. Provide temporary coverings or enclosures where insulation is subject to abuse and cannot be concealed and protected by permanent construction immediately after installation.

END OF SECTION

WATER-DRAINAGE EXTERIOR INSULATION AND FINISH SYSTEM (EIFS)

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

B. Notification of Potential Hazards: Asbestos, lead and other potentially hazardous materials are present in the building that may impact the work of all trades. Regulated air contaminants, including asbestos and lead, are also present in settled and concealed dust in and on architectural, structural, mechanical, and electrical components or systems throughout the building. All trades shall coordinate with other trades and conduct their work to prevent worker exposure or site contamination. Refer to Specification Divisions 0, 1 and 2 for specific information concerning disturbing, removing, and disposing of these materials and the installation of new materials or components. This notification is provided in accordance with EPA and OSHA requirements.

C. Notification of Child Occupied Facility: Portions of this building are classified as a Child Occupied Facility in accordance with 40 CFR 745 and lead-based paints may be present on components to be disturbed in those areas. Personnel performing work in these areas must comply with the requirements of 40 CFR 745, including training, work practices and cleaning of the work area. Refer to Specification Divisions 0, 1 and 2 for specific information concerning disturbing, removing and disposing of lead materials and the installation of new materials or components. This notification is provided in accordance with EPA and OSHA requirements.

1.2 SUMMARY

A. Section Includes:

1. Repair of EIFS cladding

1.3 DEFINITIONS

A. Definitions in ASTM E 2110 apply to Work of this Section.

B. EIFS: Exterior insulation and finish system(s).

C. IBC: International Building Code.

1.4 ACTION SUBMITTALS

A. Product Data: For each EIFS component.

1.5 INFORMATIONAL SUBMITTALS

A. Manufacturer Certificates: Signed by EIFS manufacturer, certifying the following:

1.6 QUALITY ASSURANCE

A. Installer Qualifications: An installer who is certified in writing by AWCI International as qualified to install EIFS using trained workers.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Deliver materials in original, unopened packages with manufacturers' labels intact and clearly identifying products.

B. Store materials inside and under cover; keep them dry and protected from weather, direct sunlight, surface contamination, aging, corrosion, damaging temperatures, construction traffic, and other causes.

1.8 FIELD CONDITIONS

A. Weather Limitations: Proceed with installation only when existing and forecasted weather conditions and ambient outdoor air, humidity, and substrate temperatures permit EIFS to be applied, dried, and cured according to manufacturers' written instructions and warranty requirements.

1. Proceed with installation of adhesives or coatings only when ambient temperatures have remained, or are forecast to remain, above 40 deg F for a minimum of 24 hours before, during, and after application. Do not apply EIFS adhesives or coatings during rainfall.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to the following:

1. Dryvit Systems, Inc.
2. Parex USA, Inc.
3. Senergy; BASF Corp.
4. Sto Corp.

B. Source Limitations: Obtain EIFS from single source from single EIFS manufacturer and from sources approved by EIFS manufacturer as compatible with EIFS components.

2.2 PERFORMANCE REQUIREMENTS

A. EIFS Performance: Comply with ASTM E 2568 and with the following:

1. Weathertightness: Resistant to uncontrolled water penetration from exterior, with a means to drain water entering EIFS to the exterior.
2. Impact Performance: ASTM E 2568, Standard impact resistance.
3. Abrasion Resistance of Finish Coat: Sample consisting of 1-inch-thick EIFS mounted on 1/2-inch-thick gypsum board; cured for a minimum of 28 days and shows no cracking, checking, or loss of film integrity after exposure to 528 quarts of sand when tested according to ASTM D 968, Method A.

2.3 EIFS MATERIALS

A. Water-Resistive Barrier Coating: EIFS manufacturer's standard formulation and accessories for use as water-resistive barrier coating; compatible with substrate.

1. Water-Resistance: Comply with physical and performance criteria of ASTM E 2570/E 2570M.

B. Base Coat: EIFS manufacturer's standard mixture complying with the following:

1. Factory-blended dry formulation of portland cement, dry polymer admixture, and inert fillers to which only water is added at Project site.

C. Finish Coat: EIFS manufacturer's standard acrylic-based coating complying with the following:

1. Factory-mixed formulation of polymer-emulsion binder, colorfast mineral pigments, sound stone particles, and fillers.
2. Colors: Match existing.
3. Textures: Match existing sand finish.

D. Water: Potable.

2.4 MIXING

A. Comply with EIFS manufacturer's requirements for combining and mixing materials. Do not introduce admixtures, water, or other materials, except as recommended by EIFS manufacturer. Mix materials in clean containers. Use materials within time period specified by EIFS manufacturer or discard.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

1. Begin coating application only after surfaces are dry.
2. Application of coating indicates acceptance of surfaces and conditions.

3.2 PREPARATION

A. Protect contiguous work from moisture deterioration and soiling caused by application of EIFS. Provide temporary covering and other protection needed to prevent spattering of exterior finish coats on other work.

B. Fil holes in EIFS with base coat material.

3.3 EIFS INSTALLATION, GENERAL

A. Comply with ASTM C 1397, ASTM E 2511, and EIFS manufacturer's written instructions for installation of EIFS as applicable to each type of substrate indicated.

3.4 FINISH-COAT APPLICATION

A. Finish Coat: Apply full-thickness coverage over existing substrate, maintaining a wet edge at all times for uniform appearance, to produce a uniform finish of color and texture matching existing finish and free of cold joints, shadow lines, and texture variations.

B. Coat substrate from feature reveal to feature reveal.

3.5 CLEANING AND PROTECTION

A. Remove temporary covering and protection of other work. Promptly remove coating materials from window and door frames and other surfaces outside areas indicated to receive EIFS coatings.

END OF SECTION

VAPOR RETARDERS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

B. Notification of Potential Hazards: Asbestos, lead and other potentially hazardous materials are present in the building that may impact the work of all trades. Regulated air contaminants, including asbestos and lead, are also present in settled and concealed dust in and on architectural, structural, mechanical and electrical components or systems throughout the building. All trades shall coordinate with other trades and conduct their work to prevent worker exposure or site contamination. Refer to Specification Divisions 0, 1 and 2 for specific information concerning disturbing, removing and disposing of these materials and the installation of new materials or components. This notification is provided in accordance with EPA and OSHA requirements.

C. Notification of Child Occupied Facility: Portions of this building are classified as a Child Occupied Facility in accordance with 40 CFR 745 and lead-based paints may be present on components to be disturbed in those areas. Personnel performing work in these areas must comply with the requirements of 40 CFR 745, including training, work practices and cleaning of the work area. Refer to Specification Divisions 0, 1 and 2 for specific information concerning disturbing, removing and disposing of lead materials and the installation of new materials or components. This notification is provided in accordance with EPA and OSHA requirements.

1.2 SUMMARY

A. Section Includes:

1. Polyethylene vapor retarders.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product.

PART 2 - PRODUCTS

2.1 POLYETHYLENE VAPOR RETARDERS

A. Polyethylene Vapor Retarders: ASTM D 4397, 6-mil- thick sheet, with maximum permeance rating of 0.1 perm.

2.2 ACCESSORIES

A. Vapor-Retarder Tape: Pressure-sensitive tape of type recommended by vapor-retarder manufacturer for sealing joints and penetrations in vapor retarder.

B. Vapor-Retarder Fasteners: Pancake-head, self-tapping steel drill screws; with fender washers.

PART 3 - EXECUTION

3.1 PREPARATION

A. Clean substrates of substances that are harmful to vapor retarders, including removing projections capable of puncturing vapor retarders.

3.2 INSTALLATION OF VAPOR RETARDERS ON FRAMING

A. Place vapor retarders on warm side of construction indicated on Drawings.

B. Extend vapor retarders to extremities of areas to protect from vapor transmission. Secure vapor retarders in place with adhesives, vapor retarder fasteners, or other anchorage system as recommended by manufacturer. Extend vapor retarders to cover miscellaneous voids in insulated substrates.

C. Seal vertical joints in vapor retarders over framing by lapping no fewer than two studs and sealing with vapor-retarder tape according to vapor-retarder manufacturer's written instructions. Locate all joints over framing members or other solid substrates.

D. Seal joints caused by pipes, conduits, electrical boxes, and similar items penetrating vapor retarders with vapor-retarder tape to create an airtight seal between penetrating objects and vapor retarders.

E. Repair tears or punctures in vapor retarders immediately before concealment by other work. Cover with vapor-retarder tape or another layer of vapor retarders.

3.3 PROTECTION

A. Protect vapor retarders from damage until concealed by permanent construction.

END OF SECTION

COMPOSITE WALL PANELS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

B. Notification of Potential Hazards: Asbestos, lead and other potentially hazardous materials are present in the building that may impact the work of all trades. Regulated air contaminants, including asbestos and lead, are also present in settled and concealed dust in and on architectural, structural, mechanical and electrical components or systems throughout the building. All trades shall coordinate with other trades and conduct their work to prevent worker exposure or site contamination. Refer to Specification Divisions 0, 1 and 2 for specific information concerning disturbing, removing and disposing of these materials and the installation of new materials or components. This notification is provided in accordance with EPA and OSHA requirements.

C. Notification of Child Occupied Facility: Portions of this building are classified as a Child Occupied Facility in accordance with 40 CFR 745 and lead-based paints may be present on components to be disturbed in those areas. Personnel performing work in these areas must comply with the requirements of 40 CFR 745, including training, work practices and cleaning of the work area. Refer to Specification Divisions 0, 1 and 2 for specific information concerning disturbing, removing and disposing of lead materials and the installation of new materials or components. This notification is provided in accordance with EPA and OSHA requirements.

1.2 SUMMARY

A. Section Includes:

1. Metal faced plywood wall panels.
2. Wall panel trim accessories.

1.3 ALTERNATES

A. See Section 01030 "Alternates" for description of alternates affecting items specified in this Section.

1.4 ACTION SUBMITTALS

A. Product Data:

1. Panel products.
2. Trims and accessories.

B. Samples for Verification: Actual sample of finished products for exposed finish and colors.

1. Size: 2 by 3-inch samples of metal skin.

1.5 INFORMATIONAL SUBMITTALS

A. Installation instructions.

B. Sample warranty.

1.6 CLOSEOUT SUBMITTALS

A. Warranty Documentation:

1. Manufacturers' special warranties.
2. Installer's special warranties.

1.7 QUALITY ASSURANCE

A. Manufacturer Qualifications: Manufacturer shall have a minimum of ten years experience in the manufacture of composite architectural wall systems.

B. Installer Qualifications: Installer shall be experienced in performing work of this section and be specialized in the installation of similar work required on this project.

1.8 DELIVERY, STORAGE, AND HANDLING

A. Deliver components, wall panels, and other manufactured items so as not to be damaged or deformed. Package wall panels for protection during transportation and handling.

B. Unload, store, and erect wall panels in a manner to prevent bending, warping, twisting, and surface damage.

C. Stack wall panels horizontally on platforms or pallets, covered with suitable weathertight and ventilated covering. Store wall panels to ensure dryness, with positive slope for drainage of water. Do not store wall panels in contact with other materials that might cause staining, denting, or other surface damage.

D. Retain strippable protective covering on wall panels during installation.

1.9 FIELD CONDITIONS

A. Weather Limitations: Proceed with installation only when existing and forecasted weather conditions permit assembly of wall panels to be performed in accordance with manufacturers' written instructions and warranty requirements.

1.10 WARRANTY

A. Special Warranty: Manufacturer agrees to repair or replace panels that fail(s) in materials or workmanship within specified warranty period.

1. Failures include, but are not limited to, the following:

a. Structural failures, including delamination of skin or backing.
b. Deterioration of metals, metal finishes, and other materials beyond normal weathering.

2. Warranty Period: 15 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Basis-of-Design: Subject to compliance with requirements, provide Citadel Panel 15 or approved substitution.

2.2 SOURCE LIMITATIONS

A. Obtain panels and trims from single manufacturer.

B. For panels, obtain each color, grade, finish, type, and variety from single source with resources to provide products of consistent quality in appearance and physical properties.

2.3 PERFORMANCE REQUIREMENTS

A. Panels, trim accessories and fasteners, shall withstand wind loads, structural movement, thermally induced movement, and exposure to weather without failure due to defective manufacture, fabrication, installation, or other defects in construction. Panel installation shall remain watertight.

B. Thermal Movements: Allow for thermal movements from ambient and surface temperature changes to prevent buckling, opening of joints, overstressing of components, failure of joint sealants, failure of connections, and other detrimental effects. Base calculations on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.

1. Temperature Change: 120 deg F, ambient; 180 deg F, material surfaces.

C. Surface Burning Characteristics: Test per ASTM E84. Class A rating.

1. Flame Spread Index: 25. Smoke Developed Index: 450.

2.4 COMPOSITE WALL PANELS

A. Panel Composition:

1. Face Skin: .010-inch prefinished textured aluminum.
2. Core: 5/16-inch nominal exterior grade Douglas fir plywood.

B. Panel Size: 4 by 10 foot.

C. Panel Tolerances:

1. Thickness: 1/32 inch.
2. Length and Width: Plus 0, minus 1/8 inch.
3. Squareness: 1/64 inch per lineal foot.

D. Installation System:

1. Field-assembled system of exterior cladding panels, trim moldings, silicone sealant, and accessories to provide a barrier system.

    a. Provide outside corners, inside corners edge trims and seam trims for a complete water-tight assembly.

2.5 ACCESSORIES

A. Extrusions: Conform with ASTM B211 and the manufacturer's recommendations.

1. Applied in accordance with manufacturer's guidelines.

B. Sealants: From the panel manufacturer's approved list of sealants.

1. Silicone sealant applied in accordance with manufacturer's guidelines and sealant manufacturer's recommendations.

C. Fasteners: Selected by contractor to suit project requirements.

1. Applied using the recommended fastener schedule in accordance with manufacturer's guidelines.
2. Coated to prevent corrosion and/or reaction with other materials.
3. Concealed unless unavoidable. Exposed fasteners finished to match adjoining metal.

2.6 GENERAL FINISH REQUIREMENTS

A. Protect mechanical finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.

B. Finish wall panels after assembly.

C. Appearance of Finished Work: Noticeable variations in same piece are unacceptable. Variations in appearance of adjoining components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

2.7 FINISHES

A. Finish: Polyester. Field paint to match existing.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates and conditions, with Installer present, for compliance with requirements for installation tolerances,

B. Reject panel products that are wet, moisture damaged, or mold damaged.

C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

A. Install in accordance with manufacturer's instructions.

B. Erect panels level and true to intended plane.

C. Conform to panel manufacturer's instructions for attachment systems.

D. Weather seal all joints as required using methods and materials as recommended by the panel manufacturer.

3.3 INSTALLATION TOLERANCES

A. Maximum deviation from vertical and horizontal alignment of erected panels shall be no more than 1/4 inch in 20 feet.

B. Maximum deviation in panel flatness shall be 0.6 percent of the assembled units.

3.4 PROTECTION

A. Remove temporary coverings and protection to adjacent work areas. Repair or replace damaged installed products. Clean installed products in accordance with manufacturer's instructions prior to Owner's acceptance.

B. Remove and legally dispose of construction debris from project site.

C. Protect installed products until completion of project.

D. Touch-up, repair or replace damaged products before Substantial Completion.

3.5 CLEANING

A. Remove excess sealant from face of panels.

END OF SECTION

ETHYLENE-PROPYLENE-DIENE-MONOMER (EPDM) ROOFING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

B. Notification of Potential Hazards: Asbestos, lead and other potentially hazardous materials are present in the building that may impact the work of all trades. Regulated air contaminants, including asbestos and lead, are also present in settled and concealed dust in and on architectural, structural, mechanical and electrical components or systems throughout the building. All trades shall coordinate with other trades and conduct their work to prevent worker exposure or site contamination. Refer to Specification Divisions 0, 1 and 2 for specific information concerning disturbing, removing and disposing of these materials and the installation of new materials or components. This notification is provided in accordance with EPA and OSHA requirements.

C. Notification of Child Occupied Facility: Portions of this building are classified as a Child Occupied Facility in accordance with 40 CFR 745 and lead-based paints may be present on components to be disturbed in those areas. Personnel performing work in these areas must comply with the requirements of 40 CFR 745, including training, work practices and cleaning of the work area. Refer to Specification Divisions 0, 1 and 2 for specific information concerning disturbing, removing and disposing of lead materials and the installation of new materials or components. This notification is provided in accordance with EPA and OSHA requirements.

1.2 SUMMARY

A. Section Includes:

1. Adhered ethylene-propylene-diene-terpolymer (EPDM) roofing system.
2. Substrate board.
3. Vapor retarder.
4. Roof insulation.
5. Cover board.
6. Walkways.

B. Related Requirements:

1. Section 06 10 53 "Miscellaneous Rough Carpentry" for wood nailers, curbs, and blocking.
2. Section 07 62 00 "Sheet Metal Flashing and Trim" for metal roof flashings and counterflashings.
3. Section 07 72 00 “Roofing Accessories” for roof curbs, access hatches, and fall protection devices.
4. Section 22 19 00 "Plumbing Specialties" for roof drains.

1.3 DEFINITIONS

A. Roofing Terminology: Definitions in ASTM D1079 and glossary of NRCA's "The NRCA Roofing Manual: Membrane Roof Systems" apply to work of this Section.

1.4 ACTION SUBMITTALS

A. Product Data: For each type of product.

1. For insulation and roof system component fasteners, include copy of FM Approvals' RoofNav listing.

B. Shop Drawings: Include roof plans, sections, details, and attachments to other work, including the following:

1. Layout and thickness of insulation.
2. Base flashings and membrane terminations.
3. Flashing details at penetrations.
4. Tapered insulation, thickness, and slopes.
5. Roof plan showing orientation of orientation of roof membrane and fastening spacings and patterns for mechanically fastened roofing system.
6. Insulation fastening patterns for corner, perimeter, and field-of-roof locations.
7. Tie-in with air barrier.

C. Wind Uplift Resistance Submittal: For roofing system, indicating compliance with wind uplift performance requirements.

1.5 INFORMATIONAL SUBMITTALS

A. Installer Certificates: Signed by roofing system manufacturer certifying that Installer is approved, authorized, or licensed by manufacturer to install specified roofing system and system is eligible to receive the standard roofing manufacturer’s warranty.

B. Manufacturer Certificates:

1. Performance Requirement Certificate: Signed by roof membrane manufacturer, certifying that roofing system complies with requirements specified in "Performance Requirements" Article.

a. Submit evidence of complying with performance requirements.

2. Special Warranty Certificate: Signed by roof membrane manufacturer, certifying that all materials supplied under this Section are acceptable for special warranty.

C. Submit copy of manufacturer’s affidavit of intent to warrant.

D. FM Approval Letter: Provide letter from FM Global accepting roof assembly or list of non-complying items accepted by ASD Project Manager.

E. Sample Warranties: For manufacturer's special warranties.

1.6 CLOSEOUT SUBMITTALS

A. Maintenance Data: For roofing system to include in maintenance manuals.

1.7 QUALITY ASSURANCE

A. Manufacturer Qualifications: A qualified manufacturer that is listed in FM Approvals' RoofNav for roofing system identical to that used for this Project or as approved by the ASD Project Manager. Deviations in the assembly are subject to approval by ASD Project Manager.

B. Installer Qualifications: A qualified firm that is approved, authorized, or licensed by roofing system manufacturer to install manufacturer's product and that is eligible to receive manufacturer's special warranty.

C. Perform work in accordance with NRCA Roofing Manual.

1.8 DELIVERY, STORAGE, AND HANDLING

A. Deliver roofing materials to Project site in original containers with seals unbroken and labeled with manufacturer's name, product brand name and type, date of manufacture, approval or listing agency markings, and directions for storing and mixing with other components.

B. Store liquid materials in their original undamaged containers in a clean, dry, protected location and within the temperature range required by roofing system manufacturer. Protect stored liquid material from direct sunlight.

1. Discard and legally dispose of liquid material that cannot be applied within its stated shelf life.

C. Protect roof insulation materials from physical damage and from deterioration by sunlight, moisture, soiling, and other sources. Store in a dry location. Comply with insulation manufacturer's written instructions for handling, storing, and protecting during installation.

D. Handle and store roofing materials, and place equipment in a manner to avoid permanent deflection of deck.

1.9 FIELD CONDITIONS

A. Weather Limitations: Proceed with installation only when existing and forecasted weather conditions permit roofing system to be installed according to manufacturer's written instructions and warranty requirements.

B. Do not apply roofing membrane during unsuitable weather.

C. Do not apply roofing membrane when ambient temperature is below 40 degrees F.

D. Do not apply roofing membrane to damp or frozen deck surface or when precipitation is expected or occurring.

E. Do not expose material vulnerable to water or sun damage in quantities greater than can be weather proofed in one day.

1.10 WARRANTY

A. Special Warranty: Manufacturer agrees to repair or replace components of roofing system that fail in materials or workmanship within specified warranty period. Failure includes roof leaks and blow off to 120 MPH winds specified in this Section. Conform to ICC and IBC as adopted by the Municipality of Anchorage for roof assembly fire hazards and wind uplift resistance requirements. Design for 155 mph wind, 3-second gust, exposure B.

1. Special no-dollar limit warranty includes roof membrane, base flashings, roof insulation, fasteners, cover boards, substrate board, sheet metal flashings, and other components of roofing system.
2. Warranty Period: 30 years from Date of Substantial Completion.

B. Special Project Warranty: Submit roofing Installer's warranty, on warranty form at end of this Section, signed by Installer, covering the Work of this Section, including all components of roofing system such as roof membrane, base flashing, roof insulation, fasteners, cover boards, substrate boards, vapor retarders, and walkway products, for the following warranty period:

1. Warranty Period: Two years from Date of Substantial Completion.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. General Performance: Installed roofing system and base flashings shall withstand specified uplift pressures, thermally induced movement, and exposure to weather without failure due to defective manufacture, fabrication, installation, or other defects in construction. Roofing and flashings shall remain watertight.

1. Accelerated Weathering: Roof membrane shall withstand 2000 hours of exposure when tested according to ASTM G152, ASTM G154, or ASTM G155.
2. Impact Resistance: Roof membrane shall resist impact damage when tested according to ASTM D3746, ASTM D4272, or the Resistance to Foot Traffic Test in FM Approvals 4470.

B. Material Compatibility: Roofing materials shall be compatible with one another and adjacent materials under conditions of service and application required, as demonstrated by roof membrane manufacturer based on testing and field experience.

C. Wind Uplift Resistance: Design roofing system to resist the following wind uplift pressures when tested according to FM Approvals 4474, UL 580, or UL 1897: Resist wind loads indicated on Drawings.

D. Conform to ICC and IBC as adopted by the Municipality of Anchorage for roof assembly fire hazards and wind uplift resistance requirements. Design for 155 mph wind, 3-second gust, exposure B.

E. FM Approvals' RoofNav Listing: Roof membrane, base flashings, and component materials shall comply with requirements in FM Approvals 4450 or FM Approvals 4470 as part of a roofing system and shall be listed in FM Approvals' RoofNav for Class 1 or noncombustible construction, as applicable. Identify materials with FM Approvals Certification markings.

1. Fire/Windstorm Classification: Class 1A-90.

F. Exterior Fire-Test Exposure: ASTM E108 or UL 790, Class A; for application and roof slopes indicated; testing by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.

G. Fire-Resistance Ratings: Comply with fire-resistance-rated assembly designs indicated. Identify products with appropriate markings of applicable testing agency.

2.2 SYSTEM DESIGN

A. Fully adhered EPDM roof membrane over rigid insulation over wood and steel decks.

1. Carlisle SynTec: Sure-Seal Design A.
2. Elevate: RubberGard Roofing System.
3. No substitutions.

2.3 ETHYLENE-PROPYLENE-DIENE-TERPOLYMER (EPDM) ROOFING

A. EPDM Sheet: ASTM D4637/D4637M, Type I, nonreinforced, EPDM sheet with factory-applied seam tape.

1. Thickness: 90 mils, nominal.
2. Exposed Face Color: Black.
3. Source Limitations: Obtain components for roofing system from roof membrane manufacturer or manufacturers approved by roof membrane manufacturer.

2.4 AUXILIARY ROOFING MATERIALS

A. General: Auxiliary materials recommended by roofing system manufacturer for intended use and compatible with other roofing components.

1. Adhesive and Sealants: Comply with VOC limits of authorities having jurisdiction.

B. Sheet Flashing: 60-mil-thick EPDM, partially cured or cured, according to application.

C. Warning Strips: Yellow non-reinforced thermoplastic polyolefin (TPO), 30-mil-inch thick laminated to 30-mil-thick fully cured synthetic rubber pressure sensitive adhesive, 6-inch nominal width.

D. Prefabricated Pipe Flashings: As recommended by roof membrane manufacturer.

E. Bonding Adhesive: Manufacturer's standard.

F. Seaming Material: Manufacturer's standard, synthetic-rubber polymer primer and 3-inch-wide minimum, butyl splice tape with release film Factory-applied seam tape, width as recommended by manufacturer.

G. Lap Sealant: Manufacturer's standard, single-component sealant, colored to match membrane roofing.

H. Water Cutoff Mastic: Manufacturer's standard butyl mastic sealant.

I. Metal Termination Bars: Manufacturer's standard, predrilled stainless steel or aluminum bars, approximately 1 by 1/8 inch thick; with anchors.

J. Metal Battens: Manufacturer's standard, aluminum-zinc-alloy-coated or zinc-coated steel sheet, approximately 1 inch wide by 0.05 inch thick, prepunched.

K. Fasteners: Factory-coated steel fasteners and metal or plastic plates complying with corrosion-resistance provisions in FM Approvals 4470, designed for fastening components to substrate, and acceptable to roofing system manufacturer.

L. Miscellaneous Accessories: Provide pourable sealers, preformed cone and vent sheet flashings, molded pipe boot flashings, preformed inside and outside corner sheet flashings, reinforced EPDM securement strips, T-joint covers, in-seam sealants, termination reglets, cover strips, and other accessories.

M. Pipe Flashing: Premanufactured cured flexible round boot and collar for pipe stacks through membrane with adhesion flange; same material as roofing membrane.

N. Expansion Joint Pipe Insulation: ASTM C 534, Type I – Grade 1 closed cell foam plastic pipe insulation, 1-inch-thick minimum wall.

2.5 SUBSTRATE BOARDS

A. Substrate Board: ASTM C1177/C1177M, glass-mat, water-resistant gypsum board or ASTM C1278/C1278M, fiber-reinforced gypsum board.

1. Thickness: 1/2 inch as indicated on Drawings.
2. Surface Finish: Factory primed.

B. Fasteners: Factory-coated steel fasteners and metal or plastic plates complying with corrosion-resistance provisions in FM Approvals 4470, designed for fastening substrate panel to roof deck.

2.6 VAPOR RETARDER

A. Self-Adhering-Sheet Vapor Retarder: ASTM D1970/D1970M, polyethylene or foil film laminated to layer of rubberized asphalt adhesive, minimum 40-mil-total thickness; maximum permeance rating of 0.1 perm; cold applied, with slip-resisting surface and release paper backing. Provide primer when recommended by vapor retarder manufacturer.

2.7 ROOF INSULATION

A. General: Preformed roof insulation boards manufactured or approved by EPDM roof membrane manufacturer, approved for use in FM Approvals' RoofNav-listed roof assemblies.

B. Molded (Expanded) Polystyrene Board Insulation: ASTM C578, Type II, 1.50-lb/cu. ft. minimum density, 15-psi minimum compressive strength, square edge.

1. Thermal Resistance: R-value of 4.76 per inch at 25 Deg. F.
1. Size: 48 by 96 inches for mechanically fastened insulation, 48 by 48 inches for adhered insulation.
2. Thickness:

a. Base Layer: 3 inches.
b. Upper Layer: as indicated to achieve thickness.

C. Tapered Insulation: Provide factory-tapered insulation boards.

1. Material: ASTM C578, Type II, 1.50-lb/cu. ft. minimum density, 15-psi minimum compressive strength, square edge.
2. Minimum Thickness: 1/4 inch.
3. Slope:

a. Roof Field: As indicated on Drawings, 1/4 inch per foot minimum net positive slope.
b. Saddles and Crickets: Twice roof slope indicated on Drawings, net to match roofing slope.

2.8 INSULATION ACCESSORIES

A. General: Roof insulation accessories recommended by insulation manufacturer for intended use and compatibility with other roofing system components.

B. Fasteners: Factory-coated steel fasteners and metal or plastic plates complying with corrosion-resistance provisions in FM Approvals 4470, designed for fastening roof insulation to substrate, and acceptable to roofing system manufacturer.

C. Insulation Adhesive: Insulation manufacturer's recommended adhesive formulated to attach roof insulation to substrate or to another insulation layer as follows:

1. Bead-applied, low-rise, one-component or multicomponent urethane adhesive approved by insulation manufacturer and FM Approved.

D. Cover Board: ASTM C1289 Type II, Class 4, Grade 1, 1/2-inch-thick polyisocyanurate, with a minimum compressive strength of 80 psi.

E. Cover Board (When Required by Roofing Manufacturer to Achieve Fire Rating): ASTM C1177/C1177M, glass-mat, water-resistant gypsum substrate, or ASTM C1278/C1278M, fiber-reinforced gypsum board.

1. Thickness: 1/2 inch.
2. Surface Finish: Primed or Unprimed.

2.9 WALKWAYS

A. Flexible Walkways: Factory-formed, nonporous, heavy-duty, solid-rubber, slip-resisting, surface-textured walkway pads, approximately 0.188-inch thick and acceptable to roofing system manufacturer.

1. Size: Approximately 30 by 30 inches
2. Color: Black

2.10 SIGNAGE

A. For new roofing installation, provide a typewritten photoengraved 0.032-inch-thick aluminum card. Card shall be 8 by 10 inches minimum. Information card shall identify facility name; contract number; approximate roof area; detailed roof system description, including deck type, membrane, thickness, method of application, manufacturer, insulation and cover board system and thickness; presence of tapered insulation for primary drainage, presence of vapor retarder; date of completion; installing Contractor identification and contact information; membrane manufacturer warranty expiration, warranty reference number, and contact information. Install card at each roof hatch location as directed by District.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements and other conditions affecting performance of the Work.

1. Verify that roof openings and penetrations are in place, curbs are set and braced, and roof-drain bodies are securely clamped in place.
2. Verify that wood blocking, curbs, and nailers are securely anchored to roof deck at penetrations and terminations and that nailers match thicknesses of insulation.
3. Verify that surface plane flatness. Notify Project Manager if deformations or deflection is noted.

B. Verify that surface plane flatness. Notify Project Manager if deformations or deflection is noted. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Clean substrate of dust, debris, moisture, and other substances detrimental to roofing system installation according to roofing system manufacturer's written instructions. Remove sharp projections.

B. Prevent materials from entering and clogging roof drains and conductors and from spilling or migrating onto surfaces of other construction. Remove roof-drain plugs when no work is taking place or when rain is forecast.

C. Perform fastener-pullout tests according to roof system manufacturer's written instructions.

1. Submit test result within 24 hours of performing tests.

a. Include manufacturer's requirements for revisions to previously submitted fastener patterns required to achieve specified wind uplift requirements.

3.3 INSTALLATION OF ROOFING, GENERAL

A. Install roofing system according to roofing system manufacturer's written instructions, FM Approvals' RoofNav assembly requirements, and FM Global Property Loss Prevention Data Sheet 1-29.

B. Complete terminations and base flashings and provide temporary seals to prevent water from entering completed sections of roofing system at end of workday or when rain is forecast. Remove and discard temporary seals before beginning work on adjoining roofing.

C. Install roof membrane and auxiliary materials to tie in to existing roofing to maintain weathertightness of transition.

D. Install sound-absorbing insulation strips according to acoustical roof deck manufacturer's written instructions.

3.4 INSTALLATION OF SUBSTRATE BOARD

A. Install substrate board with long joints in continuous straight lines, with end joints staggered not less than 24 inches in adjacent rows.

1. Tightly butt substrate boards together.
2. Cut substrate board to fit tight around penetrations and projections, and to fit tight to intersecting sloping roof decks.
3. Fasten substrate board to resist uplift pressure at corners, perimeter, and field of roof according to roofing system manufacturers' written instructions.
4. Survey below deck for conduit locations. Contractor to repair damaged conduits and conductors at no additional expense to Owner.

3.5 INSTALLATION OF VAPOR RETARDER

A. Self-Adhering-Sheet Vapor Retarder: Prime substrate if required by manufacturer. Install self-adhering-sheet vapor retarder over area to receive vapor retarder, side and end lapping each sheet a minimum of 3-1/2 and 6 inches, respectively.

1. Extend vertically up parapet walls and projections to a minimum height equal to height of insulation and cover board.
2. Seal laps by rolling.

B. Completely seal vapor retarder at terminations, obstructions, and penetrations to prevent air movement into roofing system.

C. Turn vapor barrier up at perimeter and penetrations through insulation to envelope insulation. Terminate vapor retarder to wall flashings. Height of vapor retarder to include all insulation and cover board.

3.6 INSTALLATION OF INSULATION

A. Coordinate installing roofing system components so insulation is not exposed to precipitation or left exposed at end of workday.

B. Comply with roofing system and insulation manufacturer's written instructions for installing roof insulation.

C. Installation Over Decking:

1. Install base layer of insulation with end joints staggered not less than 12 inches in adjacent rows and with long joints continuous at right angle to flutes of decking.

a. Trim insulation neatly to fit around penetrations and projections, and to fit tight to intersecting sloping roof decks.
b. Make joints between adjacent insulation boards not more than 1/4 inch in width.
c. Fill gaps exceeding 1/4 inch with insulation.
d. Cut and fit insulation within 1/4 inch of nailers, projections, and penetrations.
e. Loosely lay base layer of insulation units over substrate.

2. Install upper layers of insulation and tapered insulation with joints of each layer offset not less than 12 inches from previous layer of insulation.

a. Staggered end joints within each layer not less than 24 inches in adjacent rows.
b. Install with long joints continuous and with end joints staggered not less than 12 inches in adjacent rows.
c. Trim insulation neatly to fit around penetrations and projections, and to fit tight to intersecting sloping roof decks.
d. Make joints between adjacent insulation boards not more than 1/4 inch in width.
e. At internal roof drains, slope insulation to create a square drain sump with each side equal to the diameter of the drain bowl plus 24 inches.
f. Trim insulation so that water flow is unrestricted.
g. Fill gaps exceeding 1/4 inch with insulation.
h. Cut and fit insulation within 1/4 inch of nailers, projections, and penetrations.
i. Mechanically fasten insulation to roof deck according to FM Approvals' RoofNav listed roof assembly requirements for specified Windstorm Resistance Classification and FM Global Property Loss Prevention Data Sheet 1-29.
j. Where insulation exceeds screw lengths, adhere each layer of insulation to substrate using adhesive according to FM Approvals' RoofNav listed roof assembly requirements for specified Windstorm Resistance Classification and FM Global Property Loss Prevention Data Sheet 1-29, as follows:

1) Set each layer of insulation in ribbons of bead-applied insulation adhesive, firmly pressing and maintaining insulation in place.

3.7 INSTALLATION OF COVER BOARDS

A. Install cover boards over insulation with long joints in continuous straight lines with end joints staggered between rows. Offset joints of insulation below a minimum of 6 inches in each direction.

1. Trim cover board neatly to fit around penetrations and projections, and to fit tight to intersecting sloping roof decks.
2. At internal roof drains, conform to slope of drain sump.

a. Trim cover board so that water flow is unrestricted.

3. Cut and fit cover board tight to nailers, projections, and penetrations.
4. Adhere cover board to substrate using adhesive according to FM Approvals' RoofNav listed roof assembly requirements for specified Windstorm Resistance Classification and FM Global Property Loss Prevention Data Sheet 1-29, as follows:

a. Set cover board in ribbons of bead-applied insulation adhesive, firmly pressing and maintaining insulation in place.

3.8 INSTALLATION OF ADHERED ROOF MEMBRANE

A. Adhere roof membrane over area to receive roofing according to roofing system manufacturer's written instructions.

B. Unroll membrane roof membrane and allow to relax before installing.

C. Start installation of roofing in presence of roofing system manufacturer's technical personnel.

D. Accurately align roof membrane and maintain uniform side and end laps of minimum dimensions required by manufacturer. Stagger end laps.

E. Bonding Adhesive: Apply to substrate and underside of roof membrane at rate required by manufacturer and allow to partially dry before installing roof membrane. Do not apply to splice area of roof membrane.

F. In addition to adhering, mechanically fasten roof membrane securely at terminations, penetrations, and perimeters.

G. Apply roof membrane with side laps shingled with slope of roof deck where possible.

H. Tape Seam Installation: Clean and prime both faces of splice areas, apply splice tape.

1. Firmly roll side and end laps of overlapping roof membrane to ensure a watertight seam installation.
2. Apply lap sealant and seal exposed edges of roofing terminations.

I. Factory-Applied Seam Tape Installation: Clean and prime surface to receive tape.

1. Firmly roll side and end laps of overlapping roof membrane to ensure a watertight seam installation.
2. Apply lap sealant and seal exposed edges of roofing terminations.

J. Repair tears, voids, and lapped seams in roof membrane that do not comply with requirements.

K. Spread sealant or mastic bed over deck-drain flange at roof drains, and securely seal roof membrane in place with clamping ring.

L. Adhere protection sheet over roof membrane at locations indicated.

3.9 INSTALLATION OF BASE FLASHING

A. Install sheet flashings and preformed flashing accessories, and adhere to substrates according to roofing system manufacturer's written instructions.

B. Apply bonding adhesive to substrate and underside of sheet flashing at required rate, and allow to partially dry. Do not apply to seam area of flashing.

C. Flash penetrations and field-formed inside and outside corners with cured or uncured sheet flashing.

D. Clean splice areas, apply splicing cement, and firmly roll side and end laps of overlapping sheets to ensure a watertight seam installation. Apply lap sealant and seal exposed edges of sheet flashing terminations.

E. Turn membrane over top of curbs and over outer face of parapet minimum 2-inches. Secure flashing to exterior face of curb at 8-inches on center.

F. Terminate and seal top of sheet flashings and mechanically anchor to substrate through termination bars. Set termination bars at top of flashing at a straight and level plane. Provide sealant at top of termination bars at full depth and sloped to shed water.

G. Seal pipe and conduit penetrations with pipe flashing boots. Set neck of boot in sealant bed and clamp with stainless steel drawband. Flash to roof membrane. Provide continuous sealant at toe of flashing membrane.

3.10 INSTALLATION OF WALKWAYS

A. Flexible Walkways: Install walkway products according to manufacturer's written instructions.

1. Install flexible walkways at the following locations:

   a. Roof access Hatch.
   b. Top and bottom of each roof access ladder.
   c. Each side of walk throughs.
   d. Locations indicated on Drawings.
   e. As required by roof membrane manufacturer's warranty requirements.

2. Provide 6-inch clearance between adjoining pads.
3. Adhere walkway products to substrate with compatible tape according to roofing system manufacturer's written instructions.

3.11 PROTECTING AND CLEANING

A. Protect roofing system from damage and wear during remainder of construction period. When remaining construction does not affect or endanger roofing system, inspect roofing system for deterioration and damage, describing its nature and extent in a written report, with copies to Architect and Owner.

B. Correct deficiencies in or remove roofing system that does not comply with requirements, repair substrates, and repair or reinstall roofing system to a condition free of damage and deterioration at time of Substantial Completion and according to warranty requirements.

C. Clean overspray and spillage from adjacent construction using cleaning agents and procedures recommended by manufacturer of affected construction.

3.12 ROOFING INSTALLER'S WARRANTY

A. WHEREAS _____ of _____, herein called the "Roofing Installer," has performed roofing and associated work ("work") on the following project:

1. Owner: Anchorage School District.
2. Address: 1301 Labar Street, Anchorage, Alaska 99515.
3. Building Name/Type: College Gate Elementary School.
4. Address: 3101 Sunflower Street, Anchorage, AK 99508.
5. Area of Work: <Insert information>.
6. Acceptance Date: _____.
7. Warranty Period: 2 years.
8. Expiration Date: _____.

B. AND WHEREAS Roofing Installer has contracted (either directly with Owner or indirectly as a subcontractor) to warrant said work against leaks and faulty or defective materials and workmanship for designated Warranty Period,

C. NOW THEREFORE Roofing Installer hereby warrants, subject to terms and conditions herein set forth, that during Warranty Period Roofing Installer will, at Roofing Installer's own cost and expense, make or cause to be made such repairs to or replacements of said work as are necessary to correct faulty and defective work and as are necessary to maintain said work in a watertight condition.

D. This Warranty is made subject to the following terms and conditions:

1. Specifically excluded from this Warranty are damages to work and other parts of the building, and to building contents, caused by:

    a. lightning;
    b. peak gust wind speed exceeding 120 mph;
    c. fire;
    d. failure of roofing system substrate, including cracking, settlement, excessive deflection, deterioration, and decomposition;
    e. faulty construction of parapet walls, copings, chimneys, skylights, vents, equipment supports, and other edge conditions and penetrations of the work;
    f. vapor condensation on bottom of roofing; and
    g. activity on roofing by others, including construction contractors, maintenance personnel, other persons, and animals, whether authorized or unauthorized by Owner.

2. When work has been damaged by any of foregoing causes, Warranty shall be null and void until such damage has been repaired by Roofing Installer and until cost and expense thereof have been paid by Owner or by another responsible party so designated.
3. Roofing Installer is responsible for damage to work covered by this Warranty but is not liable for consequential damages to building or building contents resulting from leaks or faults or defects of work.
4. During Warranty Period, if Owner allows alteration of work by anyone other than Roofing Installer, including cutting, patching, and maintenance in connection with penetrations, attachment of other work, and positioning of anything on roof, this Warranty shall become null and void on date of said alterations, but only to the extent said alterations affect work covered by this Warranty. If Owner engages Roofing Installer to perform said alterations, Warranty shall not become null and void unless Roofing Installer, before starting said work,

shall have notified Owner in writing, showing reasonable cause for claim, that said alterations would likely damage or deteriorate work, thereby reasonably justifying a limitation or termination of this Warranty.

5. During Warranty Period, if original use of roof is changed and it becomes used for, but was not originally specified for, a promenade, work deck, spray-cooled surface, flooded basin, or other use or service more severe than originally specified, this Warranty shall become null and void on date of said change, but only to the extent said change affects work covered by this Warranty.
6. Owner shall promptly notify Roofing Installer of observed, known, or suspected leaks, defects, or deterioration and shall afford reasonable opportunity for Roofing Installer to inspect work and to examine evidence of such leaks, defects, or deterioration.
7. This Warranty is recognized to be the only warranty of Roofing Installer on said work and shall not operate to restrict or cut off Owner from other remedies and resources lawfully available to Owner in cases of roofing failure. Specifically, this Warranty shall not operate to relieve Roofing Installer of responsibility for performance of original work according to requirements of the Contract Documents, regardless of whether Contract was a contract directly with Owner or a subcontract with Owner's General Contractor.

E. IN WITNESS THEREOF, this instrument has been duly executed this _____ day of _____, _____.

1. Authorized Signature: _____.
2. Name: _____.
3. Title: _____.

END OF SECTION

SHEET METAL FLASHING AND TRIM

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

B. Notification of Potential Hazards: Asbestos, lead and other potentially hazardous materials are present in the building that may impact the work of all trades. Regulated air contaminants, including asbestos and lead, are also present in settled and concealed dust in and on architectural, structural, mechanical and electrical components or systems throughout the building. All trades shall coordinate with other trades and conduct their work to prevent worker exposure or site contamination. Refer to Specification Divisions 0, 1 and 2 for specific information concerning disturbing, removing and disposing of these materials and the installation of new materials or components. This notification is provided in accordance with EPA and OSHA requirements.

C. Notification of Child Occupied Facility: Portions of this building are classified as a Child Occupied Facility in accordance with 40 CFR 745 and lead-based paints may be present on components to be disturbed in those areas. Personnel performing work in these areas must comply with the requirements of 40 CFR 745, including training, work practices and cleaning of the work area. Refer to Specification Divisions 0, 1 and 2 for specific information concerning disturbing, removing and disposing of lead materials and the installation of new materials or components. This notification is provided in accordance with EPA and OSHA requirements.

1.2 SUMMARY

A. Section Includes:

1. Formed low-slope roof sheet metal fabrications.

B. Related Requirements:

1. Section 06 10 53 "Miscellaneous Rough Carpentry" for wood nailers, curbs, and blocking.

2. Section 07 72 00 "Roof Accessories" for set-on-type curbs, equipment supports, roof hatches, vents, and other manufactured roof accessory units.

1.3 COORDINATION

A. Coordinate sheet metal flashing and trim layout and seams with sizes and locations of penetrations to be flashed, and joints and seams in adjacent materials.

B. Coordinate sheet metal flashing and trim installation with adjoining roofing and wall materials, joints, and seams to provide leakproof, secure, and noncorrosive installation.

1.4 ACTION SUBMITTALS

A. Shop Drawings: For sheet metal flashing and trim.

1. Include sections and attachment details.

2. Detail fabrication and installation layouts, expansion-joint locations, and keyed details. Distinguish between shop- and field-assembled Work.

3. Include identification of material, thickness, weight, and finish for each item and location in Project.

4. Include details for forming, including profiles, shapes, seams, and dimensions.

5. Include details for joining, supporting, and securing, including layout and spacing of fasteners, cleats, clips, and other attachments. Include pattern of seams.

6. Include details of termination points and assemblies.

7. Include details of expansion joints and expansion-joint covers, including showing direction of expansion and contraction from fixed points.

8. Include details of roof-penetration flashing.

9. Include details of edge conditions, including eaves, ridges, valleys, rakes, crickets, flashings, and counterflashings.

10. Include details of special conditions.

11. Include details of connections to adjoining work.

12. Detail formed flashing and trim at scale of not less than 3 inches per 12 inches.

B. Samples for Verification: For each type of exposed finish.

1. For each type of sheet metal and accessory indicated with factory-applied finishes.

1.5 INFORMATIONAL SUBMITTALS

A. Product Certificates: For each type of coping and roof edge flashing that is ANSI/SPRI/FM 4435/ES-1 tested or FM Approvals approved.

B. Product Test Reports: For each product, for tests performed by a qualified testing agency.

C. Evaluation Reports: For copings and roof edge flashing, from an agency acceptable to authority having jurisdiction or ICC-ES showing compliance with ANSI/SPRI/FM 4435/ES-1.

D. Sample Warranty: For special warranty.

1.6 CLOSEOUT SUBMITTALS

A. Special warranty.

1.7 QUALITY ASSURANCE

A. Fabricator Qualifications: Employs skilled workers who custom fabricate sheet metal flashing and trim similar to that required for this Project and whose products have a record of successful in-service performance.

1. For copings and roof edge flashings that are ANSI/SPRI/FM 4435/ES-1 tested, shop shall be listed as able to fabricate required details as tested and approved.

B. Installer Qualifications: Engage an experienced installer who has completed sheet metal flashing and trim work similar in material, design and extent to that indicated for this project and with successful in-service performance.

1.8 DELIVERY, STORAGE, AND HANDLING

A. Deliver sheet metal flashing materials and fabrications undamaged. Protect sheet metal flashing and trim materials and fabrications during transportation and handling.

B. Unload, store, and install sheet metal flashing materials and fabrications in a manner to prevent bending, warping, twisting, and surface damage.

C. Do not store sheet metal flashing and trim materials in contact with other materials that might cause staining, denting, or other surface damage.

1. Protect stored sheet metal flashing and trim from contact with water.

D. Protect strippable protective covering on sheet metal flashing and trim from exposure to sunlight and high humidity, except to extent necessary for period of sheet metal flashing and trim installation.

1.9 WARRANTY

A. Coordinate warranty requirements with Section 07 53 23 “Ethylene-Propylene-Diene-terpolymer (EPDM) Roofing” for water-tight warranty.

B. Special Warranty on Finishes: Manufacturer agrees to repair finish or replace sheet metal flashing and trim that shows evidence of deterioration of factory-applied finishes within specified warranty period.

1. Exposed Panel Finish: Deterioration includes, but is not limited to, the following:
   a. Color fading more than 5 Delta E units when tested in accordance with ASTM D2244.
   b. Chalking in excess of a No. 8 rating when tested in accordance with ASTM D4214.
   c. Cracking, checking, peeling, or failure of paint to adhere to bare metal.

2. Finish Warranty Period: 20 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Sheet metal flashing and trim assemblies, including cleats, anchors, and fasteners, shall withstand wind loads, structural movement, thermally induced movement, and exposure to weather without failure due to defective manufacture, fabrication, installation, or other defects in construction. Completed sheet metal flashing and trim shall not rattle, leak, or loosen, and shall remain watertight.

B. Sheet Metal Standard for Flashing and Trim: Comply with NRCA's "The NRCA Roofing Manual: Architectural Metal Flashing, Condensation and Air Leakage Control, and Reroofing" and SMACNA's "Architectural Sheet Metal Manual" requirements for dimensions and profiles shown unless more stringent requirements are indicated.

C. SPRI Wind Design Standard: Manufacture and install copings and roof edge flashings tested in accordance with ANSI/SPRI/FM 4435/ES-1 and capable of resisting the following design pressure:

1. Design Pressure: As indicated on Drawings.

D. Thermal Movements: Allow for thermal movements from ambient and surface temperature changes to prevent buckling, opening of joints, overstressing of components, failure of joint sealants, failure of connections, and other detrimental effects. Base calculations on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.

1. Temperature Change: 120 deg F, ambient; 180 deg F, material surfaces.

2.2 SHEET METALS

A. Protect mechanical and other finishes on exposed surfaces from damage by applying strippable, temporary protective film before shipping.

B. Metallic-Coated Steel Sheet: Provide aluminum-zinc alloy-coated steel sheet in accordance with ASTM A792/A792M, Class AZ50 coating designation, Grade 40; prepainted by coil-coating process to comply with ASTM A755/A755M.

1. Surface: Smooth, flat.

2. Exposed Coil-Coated Finish:
   a. Two-Coat Fluoropolymer: AAMA 621. Fluoropolymer finish containing not less than 70 percent polyvinylidene fluoride (PVDF) resin by weight in color coat. Prepare, pretreat, and apply coating to exposed metal surfaces to comply with coating and resin manufacturers' written instructions.

3. Color: As indicated by manufacturer's designations.

4. Concealed Finish: Pretreat with manufacturer's standard white or light-colored acrylic or polyester backer finish, consisting of prime coat and wash coat with minimum total dry film thickness of 0.4 mil.

C. Metallic-Coated Steel Sheet: Provide zinc-coated (galvanized) steel sheet in accordance with ASTM A653/A653M, G90 coating designation.

1. Surface: Smooth, flat

2. Finish: Mill.

2.3 MISCELLANEOUS MATERIALS

A. Provide materials and types of fasteners, solder, protective coatings, sealants, and other miscellaneous items as required for complete sheet metal flashing and trim installation and as recommended by manufacturer of primary sheet metal unless otherwise indicated.

B. Fasteners: Wood screws, annular threaded nails, self-tapping screws, self-locking rivets and bolts, and other suitable fasteners designed to withstand design loads and recommended by manufacturer of primary sheet metal.

1. General: Blind fasteners or self-drilling screws, gasketed, with hex-washer head.
   a. Exposed Fasteners: Heads matching color of sheet metal using plastic caps or factory-applied coating. Provide metal-backed EPDM or PVC sealing washers under heads of exposed fasteners bearing on weather side of metal.
   b. Blind Fasteners: High-strength aluminum or stainless-steel rivets suitable for metal being fastened.

2. Fasteners for Zinc-Coated (Galvanized) and Aluminum-Zinc Alloy-Coated Steel Sheet: Series 300 stainless steel or hot-dip galvanized steel in accordance with ASTM A153/A153M or ASTM F2329.

C. Solder:

1. For Zinc-Coated (Galvanized) Steel: ASTM B32, Grade Sn50, 50 percent tin and 50 percent lead or Grade Sn60, 60 percent tin and 40 percent lead.

D. Sealant Tape: Pressure-sensitive, 100 percent solids, polyisobutylene compound sealant tape with release-paper backing. Provide permanently elastic, nonsag, nontoxic, nonstaining tape 1/2 inch wide and 1/8 inch thick.

E. Elastomeric Sealant: See Section 07 92 00 “Joint Sealants”.

2.4 FABRICATION, GENERAL

A. Custom fabricate sheet metal flashing and trim to comply with details indicated and recommendations in cited sheet metal standard that apply to design, dimensions, geometry, metal thickness, and other characteristics of item required.

1. Fabricate sheet metal flashing and trim in shop to greatest extent possible.

2. Fabricate sheet metal flashing and trim in thickness or weight needed to comply with performance requirements, but not less than that specified for each application and metal.

3. Verify shapes and dimensions of surfaces to be covered and obtain field measurements for accurate fit before shop fabrication.

4. Form sheet metal flashing and trim to fit substrates without excessive oil-canning, buckling, and tool marks; true to line, levels, and slopes; and with exposed edges folded back to form hems.

5. Conceal fasteners and expansion provisions where possible. Do not use exposed fasteners on faces exposed to view.

B. Fabrication Tolerances:

1. Fabricate sheet metal flashing and trim that is capable of installation to a tolerance of 1/4 inch in 20 feet on slope and location lines indicated on Drawings and within 1/8-inch offset of adjoining faces and of alignment of matching profiles.

2. Fabricate sheet metal flashing and trim that is capable of installation to tolerances specified.

C. Fabricate vertical faces with bottom edge formed outward 1/4 inch and hemmed 1/2 inch to form drip. Miter and seam corners.

D. Expansion Provisions: Space movement joints at maximum of 10 feet with no joints allowed within 24 inches of corner or intersection. Provide 6-inch-wide concealed back plates at copings.

1. Lapped or bayonet-type joints are permitted in opening flashings and counterflashings not visible from the ground.

E. Sealant Joints: Where movable, nonexpansion-type joints are required, form metal in accordance with cited sheet metal standard to provide for proper installation of elastomeric sealant.

F. Fabricate cleats and attachment devices from same material as accessory being anchored or from compatible, noncorrosive metal, but not less than one gage heavier thickness of metal being secured.

G. Fabricate cleats, concealed back plates, and attachment devices of sizes as recommended by cited sheet metal standard and by FM Global Property Loss Prevention Data Sheet 1-49 for application, but not less than thickness one gage heavier of metal being secured.

H. Do not use graphite pencils to mark metal surfaces.

2.5 LOW-SLOPE ROOF SHEET METAL FABRICATIONS

A. Copings: Fabricate in minimum 96-inch-long, but not exceeding 12-foot-long, sections. Fabricate joint plates of same thickness as copings. Furnish with continuous cleats to support edge of external leg and interior leg. Miter corners, fasten and seal watertight. Shop fabricate interior and exterior corners.

1. Coping Profile: Fig. 3-4A in accordance with SMACNA's "Architectural Sheet Metal Manual."

2. Joint Style: Butted with expansion space and 6-inch-wide, concealed backup plate.

3. Fabricate from the following materials:
   a. Aluminum-Zinc Alloy-Coated Steel: 0.024 inch thick.

B. Counterflashing: Fabricate from the following materials:

1. Aluminum-Zinc Alloy-Coated Steel: 0.024 inch thick.

C. Roof-Penetration Flashing: Fabricate from one of the following materials:

1. Galvanized Steel: 0.024 inch thick.

2. Aluminum-Zinc Alloy-Coated Steel: 0.024 inch thick.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates, areas, and conditions, with installer present, for compliance with requirements for installation tolerances, substrate, and other conditions affecting performance of the Work.

1. Verify compliance with requirements for installation tolerances of substrates.

2. Verify that substrate is sound, dry, smooth, clean, sloped for drainage, and securely anchored.

3. Verify that water-resistant barriers have been installed over sheathing or backing substrate to prevent air infiltration or water penetration.

B. Verify roofing terminations and base flashings are in place, sealed, and secured.

C. Verify all membrane cuts for protection railings have been repaired.

D. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION, GENERAL

A. Install sheet metal flashing and trim to comply with details indicated and recommendations of cited sheet metal standard that apply to installation characteristics required unless otherwise indicated on Drawings.

1. Field cutting of metal panels by torch, reciprocating saw, or abrasive type cutting wheel is not permitted.

2. Install fasteners, solder, protective coatings, separators, sealants, and other miscellaneous items as required to complete sheet metal flashing and trim system.

3. Install sheet metal flashing and trim true to line, levels, and slopes. Provide uniform, neat seams with minimum exposure of solder or sealant.

4. Anchor sheet metal flashing and trim and other components of the Work securely in place, with provisions for thermal and structural movement.

5. Install sheet metal flashing and trim to fit substrates and to result in watertight performance.

6. Install continuous cleats with fasteners spaced not more than 12 inches o.c.

7. Install exposed sheet metal flashing and trim with limited oil-canning, and free of buckling and tool marks.

8. Do not field cut sheet metal flashing and trim by torch, reciprocating saw, or abrasive grinder.

9. Do not use graphite pencils to mark metal surfaces.

B. Expansion Provisions: Provide for thermal expansion of exposed flashing and trim.

1. Space movement joints at maximum of 10 feet with no joints within 24 inches of corner or intersection. At copings and exposed metal flashings, provide 6 inch-wide concealed back plates centered on flashing joints. Hold flashings 1/8 inch apart. Set flashings in two rows of sealant, each side of joint. At concealed flashings, provide joints lapped 6-inches with two rows of sealant in the joint.

C. Fasteners: Use fastener sizes that penetrate wood blocking or sheathing not less than 1-1/4 inches for nails and not less than 3/4 inch for wood screws.

D. Conceal fasteners and expansion provisions where possible in exposed work and locate to minimize possibility of leakage. Cover and seal fasteners and anchors as required for a tight installation.

E. Seal joints as required for watertight construction.

1. Use sealant-filled joints unless otherwise indicated.
   a. Form joints to completely conceal sealant.
   b. When ambient temperature at time of installation is between 40 and 70 deg F, set joint members for 50 percent movement each way.
   c. Adjust setting proportionately for installation at higher ambient temperatures.
      1) Do not install sealant-type joints at temperatures below 40 deg F.

2. Prepare joints and apply sealants to comply with requirements in Section 07 92 00 "Joint Sealants."

F. Soldered Joints: Clean surfaces to be soldered, removing oils and foreign matter.

1. Pretin edges of sheets with solder to width of 1-1/2 inches; however, reduce pretinning where pretinned surface would show in completed Work.

2. Do not use torches for soldering.

3. Heat surfaces to receive solder, and flow solder into joint.
   a. Fill joint completely.
   b. Completely remove flux and spatter from exposed surfaces.

3.3 INSTALLATION OF ROOF FLASHINGS

A. Install sheet metal flashing and trim to comply with performance requirements and cited sheet metal standard.

1. Provide concealed fasteners where possible, and set units true to line, levels, and slopes.

2. Install work with laps, joints, and seams that are permanently watertight and weather resistant.

B. Copings:

1. Install roof edge flashings in accordance with ANSI/SPRI/FM 4435/ES-1.

2. Anchor to resist uplift and outward forces in accordance with recommendations in FM Global Property Loss Prevention Data Sheet 1-49 for specified FM Approvals' listing for required windstorm classification.

C. Flue Counterflashing: Install counterflashing umbrella with close-fitting collar with top edge flared for elastomeric sealant, extending minimum of 4 inches over base flashing. Install stainless steel draw band and tighten.

D. Counterflashing: Coordinate installation of counterflashing with installation of base flashing.

1. Insert counterflashing under existing flashjings and fit tightly to base flashing.

2. Extend counterflashing 4 inches over base flashing.

3. Lap counterflashing joints minimum of 4 inches.

4. Secure in waterproof manner by means of anchor and washer spaced at 12 inches o.c. along perimeter and 6 inches o.c. at corners areas unless otherwise indicated.

E. Roof-Penetration Flashing: Coordinate installation of roof-penetration flashing with installation of roofing and other items penetrating roof. Seal with elastomeric sealant and clamp flashing to pipes that penetrate roof.

3.4 INSTALLATION OF WALL FLASHINGS

A. Install sheet metal wall flashing to intercept and exclude penetrating moisture in accordance with cited sheet metal standard unless otherwise indicated. Coordinate installation of wall flashing with installation of wall-opening components such as windows, doors, and louvers.

3.5 INSTALLATION TOLERANCES

A. Installation Tolerances: Shim and align sheet metal flashing and trim within installed tolerance of 1/4 inch in 20 feet on slope and location lines indicated on Drawings and within 1/8-inch offset of adjoining faces and of alignment of matching profiles.

3.6 CLEANING

A. Clean exposed metal surfaces of substances that interfere with uniform oxidation and weathering.

B. Clean and neutralize flux materials. Clean off excess solder.

C. Clean off excess sealants.

3.7 PROTECTION

A. Remove temporary protective coverings and strippable films as sheet metal flashing and trim are installed unless otherwise indicated in manufacturer's written installation instructions.

B. On completion of sheet metal flashing and trim installation, remove unused materials and clean finished surfaces as recommended in writing by sheet metal flashing and trim manufacturer.

C. Maintain sheet metal flashing and trim in clean condition during construction.

D. Replace sheet metal flashing and trim that have been damaged or that have deteriorated beyond successful repair by finish touchup or similar minor repair procedures, as determined by Architect.

END OF SECTION

ROOF ACCESSORIES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

B. Notification of Potential Hazards: Asbestos, lead and other potentially hazardous materials are present in the building that may impact the work of all trades. Regulated air contaminants, including asbestos and lead, are also present in settled and concealed dust in and on architectural, structural, mechanical and electrical components or systems throughout the building. All trades shall coordinate with other trades and conduct their work to prevent worker exposure or site contamination. Refer to Specification Divisions 0, 1 and 2 for specific information concerning disturbing, removing and disposing of these materials and the installation of new materials or components. This notification is provided in accordance with EPA and OSHA requirements.

C. Notification of Child Occupied Facility: Portions of this building are classified as a Child Occupied Facility in accordance with 40 CFR 745 and lead-based paints may be present on components to be disturbed in those areas. Personnel performing work in these areas must comply with the requirements of 40 CFR 745, including training, work practices and cleaning of the work area. Refer to Specification Divisions 0, 1 and 2 for specific information concerning disturbing, removing and disposing of lead materials and the installation of new materials or components. This notification is provided in accordance with EPA and OSHA requirements.

1.2 SUMMARY

A. Section Includes:

1. Roof curbs.
2. Roof hatches.
3. Fall protection devices.

B. Related Requirements:

1. Section 05 50 00 "Metal Fabrications" for metal vertical ladders for access to roof hatches.
2. Section 07 62 00 "Sheet Metal Flashing and Trim" for shop- and field-formed metal flashing, roof-drainage systems, roof expansion-joint covers, and miscellaneous sheet metal trim and accessories.

1.3 COORDINATION

A. Coordinate layout and installation of roof accessories with roofing membrane and base flashing and interfacing and adjoining construction to provide a leakproof, weathertight, secure, and noncorrosive installation.

B. Coordinate dimensions with rough-in information or Shop Drawings of equipment to be supported.

1.4 ACTION SUBMITTALS

A. Product Data: For each type of roof accessory.

1. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes.

B. Shop Drawings: For roof accessories.

1. Include plans, elevations, keyed details, and attachments to other work. Indicate dimensions, loadings, and special conditions. Distinguish between plant- and field-assembled work.

C. Delegated-Design Submittal: For fall protection devices indicated to comply with performance requirements and design criteria, including analysis data signed and sealed by the qualified professional engineer registered in the State of Alaska, who is responsible for their preparation.

1.5 CLOSEOUT SUBMITTALS

A. Operation and Maintenance Data: For fall protection devices to include in operation and maintenance manuals.

1.6 QUALITY ASSURANCE

A. Standards: Comply with the following:

1. SMACNA's "Architectural Sheet Metal Manual" details for fabrication of units, including flanges and cap flashing to coordinate with type of roofing indicated.
2. NRCA's "Roofing Manual" details for installing units.
3. OSHA 29 CFR 1926.502 “Fall Protection Systems Criteria and Practices”.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. General Performance: Roof accessories shall withstand exposure to weather and resist thermally induced movement without failure, rattling, leaking, or fastener disengagement due to defective manufacture, fabrication, installation, or other defects in construction.

B. Delegated Design: Engage a qualified professional engineer to design fall protection devices to comply with wind performance requirements, including comprehensive engineering analysis by a qualified professional engineer, using performance requirements and design criteria indicated.

C. Wind-Restraint Performance: As indicated on Drawings.

2.2 ROOF CURBS

A. Roof Curbs: Internally reinforced roof-curb units capable of supporting superimposed live and dead loads, including equipment loads and other construction indicated on Drawings, bearing continuously on roof structure, and capable of meeting performance requirements; with welded or mechanically fastened and sealed corner joints, straight sides, and integrally formed deck-mounting flange at perimeter bottom.

B. Size: Coordinate dimensions with roughing-in information or Shop Drawings of equipment to be supported.

C. Supported Load Capacity: Coordinate load capacity with information on Shop Drawings of equipment to be supported.

D. Material: Zinc-coated (galvanized) or aluminum-zinc alloy-coated steel sheet, 0.048 inch thick.

1. Finish: Mill phosphatized.

E. Construction:

1. Curb Profile: Manufacturer's standard compatible with roofing system.
2. Fabricate curbs to minimum height of 12 inches above roofing surface unless otherwise indicated.
3. Top Surface: Level top of curb, with roof slope accommodated by sloping deck-mounting flange.
4. Sloping Roofs: Where roof slope exceeds 1:48, fabricate curb with perimeter curb height tapered to accommodate roof slope so that top surface of perimeter curb is level. Equip unit with water diverter or cricket on side that obstructs water flow.
5. Insulation: Factory insulated with 1-1/2-inch- thick glass-fiber board insulation.
6. Liner: Same material as curb, of manufacturer's standard thickness and finish.
7. Nailer: Factory-installed wood nailer under top flange on side of curb, continuous around curb perimeter.
8. Metal Counterflashing: Manufacturer's standard, removable, fabricated of same metal and finish as curb.

2.3 ROOF HATCHES

A. Roof Hatches: Metal roof-hatch units with lids and insulated double-walled curbs, welded or mechanically fastened and sealed corner joints, continuous lid-to-curb counterflashing and weathertight perimeter gasketing, straight sides, and integrally formed deck-mounting flange at perimeter bottom.

B. Type and Size: Single-leaf lid, 30 by 36 inches.

C. Loads: Minimum 40-lbf/sq. ft. external live load and 20-lbf/sq. ft. internal uplift load.

D. Hatch Material: Aluminum sheet.

1. Thickness: 0.12 inch.
2. Finish: Mill.

E. Construction:

1. Insulation: 3-inch-thick, polyisocyanurate board.

a. R-Value: 20 according to ASTM C1363.

2. Nailer: Factory-installed wood nailer continuous around hatch perimeter.
3. Hatch Lid: Opaque, insulated, and double walled, with manufacturer's standard metal liner of same material and finish as outer metal lid.
4. Curb Liner: Manufacturer's standard, of same material and finish as metal curb.
5. Fabricate curbs to minimum height of 12 inches above roofing surface unless otherwise indicated.

F. Hardware: Spring operators, hold-open arm, stainless steel spring latch with turn handles, stainless steel butt- or pintle-type hinge system, and padlock hasps inside and outside.

1. Heavy-Duty Barrel Bolt: Zinc plated steel, 5-inch minimum, bolt diameter 0.50 minimum, National Hardware N11-118 V832 or approved substitution.

G. Safety Railing System: Roof-hatch manufacturer's standard system including rails, clamps, fasteners, safety barrier at railing opening, and accessories required for a complete installation; attached to roof hatch and complying with 29 CFR 1910.23 requirements and authorities having jurisdiction.

1. Height: 42 inches above finished roof deck.
2. Posts and Rails: Galvanized-steel pipe, 1-1/4 inches in diameter or galvanized-steel tube, 1-5/8 inches in diameter.
3. Flat Bar: Galvanized steel, 2 inches high by 3/8 inch thick.
4. Maximum Opening Size: System constructed to prevent passage of a sphere 21 inches in diameter.
5. Self-Latching Gate: Fabricated of same materials and rail spacing as safety railing system. Provide manufacturer's standard hinges and self-latching mechanism.
6. Post and Rail Tops and Ends: Weather resistant, closed or plugged with prefabricated end fittings.
7. Provide weep holes or another means to drain entrapped water in hollow sections of handrail and railing members.
8. Fabricate joints exposed to weather to be watertight.
9. Fasteners: Manufacturer's standard, finished to match railing system.
10. Finish: Manufacturer's standard powder coating.

H. Ladder-Assist Post: Roof-hatch manufacturer's standard device for attachment to roof-access ladder.

1. Operation: Post locks in place on full extension; release mechanism returns post to closed position.
2. Height: 42 inches above finished roof deck.
3. Material: Steel tube.
4. Post: 1-5/8-inch- diameter pipe.
5. Finish: Manufacturer's standard baked enamel or powder coat.

2.4 FALL PROTECTION ACCESSORIES

A. Fall Protection Post Anchor (FP-XX): ANSI Z359.1, ANSI A10.32, OSHA 1926 Subpart M, OSHA 1910, 5,000 lb minimum breaking strength, galvanized steel construction with base plate.

1. Basis-of-Design: Subject to compliance with requirements, provide Guardian CB18 Anchor Point Model 00657, or approved substitution.
2. Provide spacer material to provide minimum 12-inches of post above roofing membrane.

B. Fall Protection Wall Anchor (Where indicated as wall anchor): ANSI Z359.1, ANSI A10.32, OSHA 1926 Subpart M, OSHA 1910, 5,000 lb minimum breaking strength, galvanized steel construction with base plate.

1. Basis-of-Design: Subject to compliance with requirements, provide Guardian CB-1-B Anchor Point Model 00601, or approved substitution.

C. Safety Flags: 4 by 5-inch PVC orange flag on 21-inch steel wire.

1. Basis-of-Design: Subject to compliance with requirements, provide Presco, ACE Supply, or approved substitution.

2.5 METAL MATERIALS

A. Zinc-Coated (Galvanized) Steel Sheet: ASTM A653/A653M, G90 coating designation.

1. Mill-Phosphatized Finish: Manufacturer's standard for field painting.
2. Baked-Enamel or Powder-Coat Finish: After cleaning and pretreating, apply manufacturer's standard two-coat, baked-on finish consisting of prime coat and thermosetting topcoat to a minimum dry film thickness of 2 mils.

B. Aluminum-Zinc Alloy-Coated Steel Sheet: ASTM A792/A792M, AZ50 coated.

C. Aluminum Sheet: ASTM B209, manufacturer's standard alloy for finish required, with temper to suit forming operations and performance required.

1. Mill Finish: As manufactured.

D. Steel Pipe: ASTM A53/A53M, galvanized.

2.6 MISCELLANEOUS MATERIALS

A. Provide materials and types of fasteners, protective coatings, sealants, and other miscellaneous items required by manufacturer for a complete installation.

B. Polyisocyanurate Board Insulation: ASTM C1289, thickness and thermal resistivity as indicated.

C. Wood Nailers: Softwood lumber, pressure treated with waterborne preservatives for aboveground use, acceptable to authorities having jurisdiction, and complying with AWPA C2; not less than 1-1/2 inches thick.

D. Fasteners: Roof accessory manufacturer's recommended fasteners suitable for application and metals being fastened. Match finish of exposed fasteners with finish of material being fastened. Provide nonremovable fastener heads to exterior exposed fasteners. Furnish the following unless otherwise indicated:

1. Fasteners for Zinc-Coated or Aluminum-Zinc Alloy-Coated Steel: Series 300 stainless steel or hot-dip zinc-coated steel according to ASTM A153/A153M or ASTM F2329.
2. Fasteners for Aluminum Sheet: Aluminum or Series 300 stainless steel.

E. Gaskets: Manufacturer's standard tubular or fingered design of neoprene, EPDM, PVC, or silicone or a flat design of foam rubber, sponge neoprene, or cork.

2.7 GENERAL FINISH REQUIREMENTS

A. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.

B. Appearance of Finished Work: Noticeable variations in same piece are not acceptable. Variations in appearance of adjoining components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates, areas, and conditions, with Installer present, to verify actual locations, dimensions, and other conditions affecting performance of the Work.

B. Verify that substrate is sound, dry, smooth, clean, sloped for drainage, and securely anchored.

C. Verify dimensions of roof openings for roof accessories.

D. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

A. Install roof accessories according to manufacturer's written instructions.

1. Install roof accessories level; plumb; true to line and elevation; and without warping, jogs in alignment, buckling, or tool marks.
2. Anchor roof accessories securely in place so they are capable of resisting indicated loads.
3. Use fasteners, separators, sealants, and other miscellaneous items as required to complete installation of roof accessories and fit them to substrates.
4. Install roof accessories to resist exposure to weather without failing, rattling, leaking, or loosening of fasteners and seals.

B. Roof Curb Installation: Install each roof curb so top surface is level.

C. Roof-Hatch Installation:

1. Verify that roof hatch operates properly. Clean, lubricate, and adjust operating mechanism and hardware.
2. Attach safety railing system to roof-hatch curb.
3. Attach ladder-assist post according to manufacturer's written instructions.

D. Fall Protection Installation: Install anchor points as recommended by anchor manufacturer.

1. Locate fall protection post anchors 6 feet off parapet and 2 feet off centerline of ladder.
2. Provide spacers if necessary to achieve minimum 12-inch from top of post to top of membrane.
3. Flash fixed heights anchors with roof pipe boot flashing per Section 07 53 23 – “Ethylene-Propylene-Diene-Monomer (EPDM) Roofing”.
4. Provide one safety flag at each fall protection post anchor. Secure wire post to anchor with two stainless steel draw bands above flashing boot. Secure on side opposite roof edge.

5. Located fall protection wall anchor 4 feet above roof surface. Anchor to concrete wall per manufacturer's requirements.

E. Seal joints with elastomeric sealant as required by roof accessory manufacturer.

3.3 REPAIR AND CLEANING

A. Galvanized Surfaces: Clean field welds, bolted connections, and abraded areas and repair galvanizing according to ASTM A780/A780M.

B. Clean exposed surfaces according to manufacturer's written instructions.

C. Clean off excess sealants.

D. Replace roof accessories that have been damaged or that cannot be successfully repaired by finish touchup or similar minor repair procedures.

END OF SECTION

PENETRATION FIRESTOPPING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

B. Notification of Potential Hazards: Asbestos, lead and other potentially hazardous materials are present in the building that may impact the work of all trades. Regulated air contaminants, including asbestos and lead, are also present in settled and concealed dust in and on architectural, structural, mechanical and electrical components or systems throughout the building. All trades shall coordinate with other trades and conduct their work to prevent worker exposure or site contamination. Refer to Specification Divisions 0, 1 and 2 for specific information concerning disturbing, removing and disposing of these materials and the installation of new materials or components. This notification is provided in accordance with EPA and OSHA requirements.

C. Notification of Child Occupied Facility: Portions of this building are classified as a Child Occupied Facility in accordance with 40 CFR 745 and lead-based paints may be present on components to be disturbed in those areas. Personnel performing work in these areas must comply with the requirements of 40 CFR 745, including training, work practices and cleaning of the work area. Refer to Specification Divisions 0, 1 and 2 for specific information concerning disturbing, removing and disposing of lead materials and the installation of new materials or components. This notification is provided in accordance with EPA and OSHA requirements.

1.2 SUMMARY

A. Section Includes:

1. Penetration firestopping systems for the following applications:

    a. Penetrations in fire-resistance-rated walls.
    b. Penetrations in smoke barriers.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Product Schedule: For each penetration firestopping system. Include location, illustration of firestopping system, and design designation of qualified testing and inspecting agency.

1. Engineering Judgments: Where Project conditions require modification to a qualified testing and inspecting agency's illustration for a particular penetration firestopping system, submit illustration, with modifications marked, approved by penetration firestopping system manufacturer's fire-protection engineer as an engineering judgment or equivalent fire-resistance-rated assembly. Obtain approval of authorities having jurisdiction prior to submittal.

1.4 PROJECT CONDITIONS

A. Environmental Limitations: Do not install penetration firestopping system when ambient or substrate temperatures are outside limits permitted by penetration firestopping system manufacturers or when substrates are wet because of rain, frost, condensation, or other causes.

B. Install and cure penetration firestopping materials per manufacturer's written instructions using natural means of ventilations or, where this is inadequate, forced-air circulation.

1.5 COORDINATION

A. Coordinate construction of openings and penetrating items to ensure that penetration firestopping systems can be installed according to specified firestopping system design.

B. Coordinate sizing of sleeves, openings, core-drilled holes, or cut openings to accommodate penetration firestopping systems.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Fire-Test-Response Characteristics:

1. Perform penetration firestopping system tests by a qualified testing agency acceptable to authorities having jurisdiction.
2. Test per testing standards referenced in "Penetration Firestopping Systems" Article. Provide rated systems complying with the following requirements:

a. Penetration firestopping systems shall bear classification marking of a qualified testing agency.

1) UL in its "Fire Resistance Directory."
2) Intertek Group in its "Directory of Listed Building Products."
3) FM Approval in its "Approval Guide."

2.2 PENETRATION FIRESTOPPING SYSTEMS

A. Penetration Firestopping Systems: Systems that resist spread of fire, passage of smoke and other gases, and maintain original fire-resistance rating of construction penetrated. Penetration firestopping systems shall be compatible with one another, with the substrates forming openings, and with penetrating items if any.

B. Penetrations in Fire-Resistance-Rated Walls: Penetration firestopping systems with ratings determined per ASTM E814 or UL 1479, based on testing at a positive pressure differential of 0.01-inch wg.

1. F-Rating: Not less than the fire-resistance rating of constructions penetrated.

C. Penetrations in Smoke Barriers: Penetration firestopping systems with ratings determined per UL 1479, based on testing at a positive pressure differential of 0.30-inch wg.

1. L-Rating: Not exceeding 5.0 cfm/sq. ft. of penetration opening at and no more than 50-cfm cumulative total for any 100 sq. ft. at both ambient and elevated temperatures.

D. Exposed Penetration Firestopping Systems: Flame-spread and smoke-developed indexes of less than 25 and 450, respectively, per ASTM E84.

E. Accessories: Provide components for each penetration firestopping system that are needed to install fill materials and to maintain ratings required. Use only those components specified by penetration firestopping system manufacturer and approved by qualified testing and inspecting agency for conditions indicated.

2.3 FILL MATERIALS

A. Latex Sealants: Single-component latex formulations that do not re-emulsify after cure during exposure to moisture.

B. Silicone Sealants: Single-component, silicone-based, neutral-curing elastomeric sealants.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates and conditions, with Installer present, for compliance with requirements for opening configurations, penetrating items, substrates, and other conditions affecting performance of the Work.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Surface Cleaning: Before installing penetration firestopping systems, clean out openings immediately to comply with manufacturer's written instructions and with the following requirements:

1. Remove from surfaces of opening substrates and from penetrating items foreign materials that could interfere with adhesion of penetration firestopping materials.
2. Clean opening substrates and penetrating items to produce clean, sound surfaces capable of developing optimum bond with penetration firestopping materials. Remove loose particles remaining from cleaning operation.
3. Remove laitance and form-release agents from concrete.

B. Prime substrates where recommended in writing by manufacturer using that manufacturer's recommended products and methods. Confine primers to areas of bond; do not allow spillage and migration onto exposed surfaces.

3.3 INSTALLATION

A. General: Install penetration firestopping systems to comply with manufacturer's written installation instructions and published drawings for products and applications.

B. Install fill materials by proven techniques to produce the following results:

1. Fill voids and cavities formed by openings, forming materials, accessories and penetrating items to achieve required fire-resistance ratings.
2. Apply materials so they contact and adhere to substrates formed by openings and penetrating items.
3. For fill materials that will remain exposed after completing the Work, finish to produce smooth, uniform surfaces that are flush with adjoining finishes.

3.4 IDENTIFICATION

A. Wall Identification: Permanently label walls containing penetration firestopping systems with the words "FIRE AND/OR SMOKE BARRIER - PROTECT ALL OPENINGS," using lettering not less than 3 inches high and with minimum 0.375-inch strokes.

1. Locate in accessible concealed floor, floor-ceiling, or attic space at 15 feet from end of wall and at intervals not exceeding 30 feet.

B. Penetration Identification: Identify each penetration firestopping system with legible metal or plastic labels. Attach labels permanently to surfaces adjacent to and within 6 inches of penetration firestopping system edge so labels are visible to anyone seeking to remove penetrating items or firestopping systems. Use mechanical fasteners or self-adhering-type labels with adhesives capable of permanently bonding labels to surfaces on which labels are placed. Include the following information on labels:

1. The words "Warning - Penetration Firestopping - Do Not Disturb. Notify Building Management of Any Damage."
2. Contractor's name, address, and phone number.
3. Designation of applicable testing and inspecting agency.
4. Date of installation.
5. Manufacturer's name.
6. Installer's name.

3.5 FIELD QUALITY CONTROL

A. Owner will engage a qualified testing agency to perform tests and inspections according to ASTM E2174.

B. Where deficiencies are found or penetration firestopping system is damaged or removed because of testing, repair or replace penetration firestopping system to comply with requirements.

C. Proceed with enclosing penetration firestopping systems with other construction only after inspection reports are issued and installations comply with requirements.

3.6 CLEANING AND PROTECTION

A. Clean off excess fill materials adjacent to openings as the Work progresses by methods and with cleaning materials that are approved in writing by penetration firestopping system manufacturers and that do not damage materials in which openings occur.

B. Provide final protection and maintain conditions during and after installation that ensure that penetration firestopping systems are without damage or deterioration at time of Substantial Completion. If, despite such protection, damage or deterioration occurs, immediately cut out and remove damaged or deteriorated penetration firestopping material and install new materials to produce systems complying with specified requirements.

3.7 PENETRATION FIRESTOPPING SYSTEM SCHEDULE

A. Where UL-classified systems are indicated, they refer to system numbers in UL's "Fire Resistance Directory" under product Category XHEZ.

B. Provide silicone foam at fire rated walls and partitions, rating to match partition. See Drawings for ratings.

C. Penetration Firestopping Systems with No Penetrating Items:

1. UL-Classified Systems: C-AJ- F-A- or W-L- 0001-0999.

D. Penetration Firestopping Systems for Metallic Pipes, Conduit, or Tubing:

1. UL-Classified Systems: C-AJ- F-A- or W-L- 1001-1999.

E. Penetration Firestopping Systems for Insulated Pipes:

1. UL-Classified Systems: C-AJ- F-A- or W-L- 5001-5999.

END OF SECTION

ACCESS DOORS AND FRAMES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

B. Notification of Potential Hazards: Asbestos, lead and other potentially hazardous materials are present in the building that may impact the work of all trades. Regulated air contaminants, including asbestos and lead, are also present in settled and concealed dust in and on architectural, structural, mechanical and electrical components or systems throughout the building. All trades shall coordinate with other trades and conduct their work to prevent worker exposure or site contamination. Refer to Specification Divisions 0, 1 and 2 for specific information concerning disturbing, removing and disposing of these materials and the installation of new materials or components. This notification is provided in accordance with EPA and OSHA requirements.

C. Notification of Child Occupied Facility: Portions of this building are classified as a Child Occupied Facility in accordance with 40 CFR 745 and lead-based paints may be present on components to be disturbed in those areas. Personnel performing work in these areas must comply with the requirements of 40 CFR 745, including training, work practices and cleaning of the work area. Refer to Specification Divisions 0, 1 and 2 for specific information concerning disturbing, removing and disposing of lead materials and the installation of new materials or components. This notification is provided in accordance with EPA and OSHA requirements.

1.2 SUMMARY

A. Section includes access doors and frames for walls and ceilings.

B. Related Requirements:

1. Section 07 72 00 "Roof Accessories" for roof hatches.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product.

1. Include construction details material descriptions, dimensions of individual components and profiles, and finishes.

PART 2 - PRODUCTS

2.1 ACCESS DOORS AND FRAMES

A. Flush Access Doors with Exposed Flanges:

1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to the following:

    a. Babcock-Davis.
    b. JL Industries, Inc.; a division of the Activar Construction Products Group.
    c. Karp Associates, Inc.
    d. Larsens Manufacturing Company.
    e. Milcor; Commercial Products Group of Hart & Cooley, Inc.
    f. Nystrom, Inc.

2. Description: Face of door flush with frame, with exposed flange and concealed hinge.
3. Locations: Wall or ceiling.
4. Metallic-Coated Steel Sheet for Door: Nominal 0.064 inch, 16 gage, factory finished.
5. Frame Material: Same material, thickness, and finish as door.
6. Latch and Lock: Cam latch, screwdriver operated.

2.2 MATERIALS

A. Steel Plates, Shapes, and Bars: ASTM A36/A36M.

B. Metallic-Coated Steel Sheet: ASTM A653/A653M, Commercial Steel (CS), Type B; with minimum G60 or A60 metallic coating.

C. Frame Anchors: Same material as door face.

D. Inserts, Bolts, and Anchor Fasteners: Hot-dip galvanized steel according to ASTM A153/A153M or ASTM F2329.

2.3 FABRICATION

A. General: Provide access door and frame assemblies manufactured as integral units ready for installation.

B. Metal Surfaces: For metal surfaces exposed to view in the completed Work, provide materials with smooth, flat surfaces without blemishes. Do not use materials with exposed pitting, seam marks, roller marks, rolled trade names, or roughness.

C. Doors and Frames: Grind exposed welds smooth and flush with adjacent surfaces. Furnish mounting holes, attachment devices and fasteners of type required to secure access doors to types of supports indicated.

D. Latch and Lock Hardware:

1. Quantity: Furnish number of latches and locks required to hold doors tightly closed.

2.4 FINISHES

A. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.

B. Protect mechanical finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.

C. Appearance of Finished Work: Noticeable variations in same piece are not acceptable. Variations in appearance of adjoining components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

D. Painted Finishes: Comply with coating manufacturer's written instructions for cleaning, conversion coating, and applying and baking finish.

1. Factory Finished: Apply manufacturer's standard powder-coat finish immediately after cleaning and pretreating, with minimum dry-film thickness of 1 mil for topcoat.
   a. Color: Manufacturer’s standard white.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

A. Comply with manufacturer's written instructions for installing access doors and frames.

3.3 ADJUSTING

A. Adjust doors and hardware, after installation, for proper operation.

END OF SECTION

NON-STRUCTURAL METAL FRAMING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

B. Notification of Potential Hazards: Asbestos, lead and other potentially hazardous materials are present in the building that may impact the work of all trades. Regulated air contaminants, including asbestos and lead, are also present in settled and concealed dust in and on architectural, structural, mechanical and electrical components or systems throughout the building. All trades shall coordinate with other trades and conduct their work to prevent worker exposure or site contamination. Refer to Specification Divisions 0, 1 and 2 for specific information concerning disturbing, removing and disposing of these materials and the installation of new materials or components. This notification is provided in accordance with EPA and OSHA requirements.

C. Notification of Child Occupied Facility: Portions of this building are classified as a Child Occupied Facility in accordance with 40 CFR 745 and lead-based paints may be present on components to be disturbed in those areas. Personnel performing work in these areas must comply with the requirements of 40 CFR 745, including training, work practices and cleaning of the work area. Refer to Specification Divisions 0, 1 and 2 for specific information concerning disturbing, removing and disposing of lead materials and the installation of new materials or components. This notification is provided in accordance with EPA and OSHA requirements.

1.2 SUMMARY

A. Section Includes:

1. Non-load-bearing steel framing systems for interior partitions, roof parapets, and curbs.

1.3 DESIGN REQUIREMENTS

A. Design in accordance with American Iron and Steel Institute Publication “Specification for the Design of Cold-Formed Steel Structural Members”, except as otherwise shown or specified.

1.4 QUALITY ASSURANCE

A. Code-Compliance Certification of Studs and Tracks: Provide documentation that framing members are certified according to the product-certification program of the Certified Steel Stud Association, the Steel Framing Industry Association, or the Steel Stud Manufacturers Association.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Notify manufacturer of damaged materials received prior to installing.

B. Deliver materials in manufacturer's original, unopened, undamaged containers with identification labels intact.

C. Protect cold-formed metal framing from corrosion, deformation, and other damage during delivery, storage, and handling as required in AISI's "Code of Standard Practice".

PART 2 - PRODUCTS

2.1 FRAMING SYSTEMS

A. Framing Members, General: Comply with ASTM C754 for conditions indicated.

1. Steel Sheet Components: Comply with ASTM C645 requirements for steel.
2. Protective Coating: ASTM A653/A653M, G60, hot-dip galvanized.

B. Studs and Tracks: ASTM C645.

1. Steel Studs and Tracks:

a. Minimum Base-Steel Thickness: 0.0359 inch.
b. Depth: As indicated on Drawings.

C. Flat Strap and Backing Plate: Steel sheet for blocking.

1. Minimum Base-Steel Thickness: 0.063 inch.

2.2 AUXILIARY MATERIALS

A. General: Provide auxiliary materials that comply with referenced installation standards.

1. Fasteners for Steel Framing: Of type, material, size, corrosion resistance, holding power, and other properties required to fasten steel members to substrates.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine areas and substrates, with Installer present, and including welded hollow-metal frames, cast-in anchors, and structural framing, for compliance with requirements and other conditions affecting performance of the Work.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION, GENERAL

A. Installation Standard: ASTM C754.

B. Install framing and accessories plumb, square, and true to line, with connections securely fastened.

3.3 INSTALLING FRAMED ASSEMBLIES

A. Install framing system components according to spacings indicated, but not greater than spacings required by referenced installation standards for assembly types.

1. Single-Layer Application: 16 inches o.c. unless otherwise indicated.

B. Where studs are installed directly against exterior concrete walls or dissimilar metals at exterior walls, install isolation strip between studs and exterior wall.

C. Install studs so flanges within framing system point in same direction.

D. Installation Tolerance: Install each framing member so fastening surfaces vary not more than 1/8 inch from the plane formed by faces of adjacent framing.

END OF SECTION

GYPSUM BOARD

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

B. Notification of Potential Hazards: Asbestos, lead and other potentially hazardous materials are present in the building that may impact the work of all trades. Regulated air contaminants, including asbestos and lead, are also present in settled and concealed dust in and on architectural, structural, mechanical and electrical components or systems throughout the building. All trades shall coordinate with other trades and conduct their work to prevent worker exposure or site contamination. Refer to Specification Divisions 0, 1 and 2 for specific information concerning disturbing, removing and disposing of these materials and the installation of new materials or components. This notification is provided in accordance with EPA and OSHA requirements.

C. Notification of Child Occupied Facility: Portions of this building are classified as a Child Occupied Facility in accordance with 40 CFR 745 and lead-based paints may be present on components to be disturbed in those areas. Personnel performing work in these areas must comply with the requirements of 40 CFR 745, including training, work practices and cleaning of the work area. Refer to Specification Divisions 0, 1 and 2 for specific information concerning disturbing, removing and disposing of lead materials and the installation of new materials or components. This notification is provided in accordance with EPA and OSHA requirements.

1.2 SUMMARY

A. Section Includes:

1. Interior gypsum board.

1.3 DELIVERY, STORAGE AND HANDLING

A. Store materials inside under cover and keep them dry and protected against weather, condensation, direct sunlight, construction traffic, and other potential causes of damage. Stack panels flat and supported on risers on a flat platform to prevent sagging.

1.4 FIELD CONDITIONS

A. Environmental Limitations: Comply with ASTM C840 requirements or gypsum board manufacturer's written instructions, whichever are more stringent.

B. Do not install paper-faced gypsum panels until installation areas are enclosed and conditioned.

C. Do not install panels that are wet, moisture damaged, and mold damaged.

1. Indications that panels are wet or moisture damaged include, but are not limited to, discoloration, sagging, or irregular shape.
2. Indications that panels are mold damaged include, but are not limited to, fuzzy or splotchy surface contamination and discoloration.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Fire-Resistance-Rated Assemblies: For fire-resistance-rated assemblies, provide materials and construction identical to those tested in assembly indicated according to ASTM E119 by an independent testing agency.

1. Fire-Resistance-Rated Assemblies: Indicated by design designations from FM's "Approval Guide, Building Products", UL's "Fire Resistance Directory." GA-600, or "Fire Resistance Design Manual.".

B. STC-Rated Assemblies: For STC-rated assemblies, provide materials and construction identical to those tested in assembly indicated according to ASTM E90 and classified according to ASTM E413 by an independent testing agency.

2.2 GYPSUM BOARD, GENERAL

A. Size: Provide maximum lengths and widths available that will minimize joints in each area and that correspond with support system indicated.

2.3 INTERIOR GYPSUM BOARD

A. Gypsum Board, Type X: ASTM C1396/C1396M.

1. Thickness: 5/8 inch.
2. Long Edges: Tapered.

2.4 TRIM ACCESSORIES

A. Interior Trim: ASTM C1047.

1. Material: Galvanized or aluminum-coated steel sheet or rolled zinc.
2. Shapes:

a. LC-Bead: J-shaped; exposed long flange receives joint compound.

2.5 JOINT TREATMENT MATERIALS

A. General: Comply with ASTM C475/C475M.

B. Joint Tape:

1. Interior Gypsum Board: Paper.

C. Joint Compound for Interior Gypsum Board: For each coat, use formulation that is compatible with other compounds applied on previous or for successive coats.

1. Embedding and First Coat: For embedding tape and first coat on joints, fasteners, and trim flanges, use drying-type, all-purpose compound.
2. Fill Coat: For second coat, use drying-type, all-purpose compound.
3. Finish Coat: For third coat, use drying-type, all-purpose compound.

2.6 AUXILIARY MATERIALS

A. Provide auxiliary materials that comply with referenced installation standards and manufacturer's written instructions.

B. Steel Drill Screws: ASTM C1002 unless otherwise indicated.

1. Use screws complying with ASTM C954 for fastening panels to steel members from 0.033 to 0.112 inch thick.

C. Thermal Insulation: As specified in Section 07 21 00 "Thermal Insulation."

D. Vapor Retarder: As specified in Section 07 26 00 "Vapor Retarders."

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine areas and substrates including welded hollow-metal frames and support framing, with Installer present, for compliance with requirements and other conditions affecting performance of the Work.

B. Examine panels before installation. Reject panels that are wet, moisture damaged, and mold damaged.

C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION AND FINISHING OF PANELS, GENERAL

A. Comply with ASTM C840.

B. Install panels with face side out. Butt panels together for a light contact at edges and ends with not more than 1/16 inch of open space between panels. Do not force into place.

C. Locate edge and end joints over supports

D. Isolate perimeter of gypsum board applied to non-load-bearing partitions at structural abutments. Provide 1/4- to 1/2-inch-wide spaces at these locations and trim edges with edge trim where

edges of panels are exposed. Seal joints between edges and abutting structural surfaces with acoustical sealant.

E. Attachment to Steel Framing: Attach panels so leading edge or end of each panel is attached to open (unsupported) edges of stud flanges first.

3.3 INSTALLATION OF INTERIOR GYPSUM BOARD

A. Install interior gypsum board in the following locations:

1. Type X: As indicated on Drawings Vertical surfaces unless otherwise indicated.

B. Single-Layer Application:

1. On partitions/walls, apply gypsum panels horizontally (perpendicular to framing) unless otherwise indicated or required by fire-resistance-rated assembly, and minimize end joints.

3.4 INSTALLATION OF TRIM ACCESSORIES

A. General: For trim with back flanges intended for fasteners, attach to framing with same fasteners used for panels. Otherwise, attach trim according to manufacturer's written instructions.

B. Interior Trim: Install in the following locations:

1. LC-Bead: Use at exposed panel edges.

3.5 FINISHING GYPSUM BOARD

A. General: Treat gypsum board joints, interior angles, edge trim, control joints, penetrations, fastener heads, surface defects, and elsewhere as required to prepare gypsum board surfaces for decoration. Promptly remove residual joint compound from adjacent surfaces.

B. Prefill open joints and damaged surface areas.

C. Apply joint tape over gypsum board joints.

D. Gypsum Board Finish Levels: Finish panels to Level 4 according to ASTM C840:

3.6 PROTECTION

A. Protect adjacent surfaces from drywall compound and promptly remove from floors and other non-drywall surfaces. Repair surfaces stained, marred, or otherwise damaged during drywall application.

B. Protect installed products from damage from weather, condensation, direct sunlight, construction, and other causes during remainder of the construction period.

C. Remove and replace panels that are wet, moisture damaged, and mold damaged.

1. Indications that panels are wet or moisture damaged include, but are not limited to, discoloration, sagging, or irregular shape.
2. Indications that panels are mold damaged include, but are not limited to, fuzzy or splotchy surface contamination and discoloration.

END OF SECTION

ACOUSTICAL PANEL CEILINGS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

B. Notification of Potential Hazards: Asbestos, lead and other potentially hazardous materials are present in the building that may impact the work of all trades. Regulated air contaminants, including asbestos and lead, are also present in settled and concealed dust in and on architectural, structural, mechanical and electrical components or systems throughout the building. All trades shall coordinate with other trades and conduct their work to prevent worker exposure or site contamination. Refer to Specification Divisions 0, 1 and 2 for specific information concerning disturbing, removing and disposing of these materials and the installation of new materials or components. This notification is provided in accordance with EPA and OSHA requirements.

C. Notification of Child Occupied Facility: Portions of this building are classified as a Child Occupied Facility in accordance with 40 CFR 745 and lead-based paints may be present on components to be disturbed in those areas. Personnel performing work in these areas must comply with the requirements of 40 CFR 745, including training, work practices and cleaning of the work area. Refer to Specification Divisions 0, 1 and 2 for specific information concerning disturbing, removing and disposing of lead materials and the installation of new materials or components. This notification is provided in accordance with EPA and OSHA requirements.

1.2 SUMMARY

A. Section includes acoustical panels and exposed suspension systems for interior ceilings.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product.

1.4 MAINTENANCE MATERIAL SUBMITTALS

A. Furnish extra materials, from the same product run, that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

1. Acoustical Ceiling Units: Full-size panels equal to 2 percent of quantity installed.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Deliver acoustical panels, suspension-system components, and accessories to Project site and store them in a fully enclosed, conditioned space where they will be protected against damage from moisture, humidity, temperature extremes, direct sunlight, surface contamination, and other causes.

B. Before installing acoustical panels, permit them to reach room temperature and a stabilized moisture content.

1.6 FIELD CONDITIONS

A. Environmental Limitations: Do not install acoustical panel ceilings until spaces are enclosed and weathertight, wet-work in spaces is complete and dry, work above ceilings is complete, and ambient temperature and humidity conditions are maintained at the levels indicated for Project when occupied for its intended use.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Source Limitations: Obtain each type of acoustical ceiling panel and its supporting suspension system from single source from single manufacturer.

2.2 PERFORMANCE REQUIREMENTS

A. Seismic Performance: Suspended ceilings shall withstand the effects of earthquake motions determined according to ASCE/SEI 7.

B. Surface-Burning Characteristics: Comply with ASTM E 84; testing by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.

1. Flame-Spread Index: Class A according to ASTM E 1264.
2. Smoke-Developed Index: 50 or less.

2.3 ACOUSTICAL PANELS

A. Acoustical Panel Standard: Provide manufacturer's standard panels according to ASTM E 1264 and designated by type, form, pattern, acoustical rating, and light reflectance unless otherwise indicated.

B. Classification: Provide panels as follows:

1. Type and Form: Type III, mineral base with painted finish; Form 2, water felted.
2. Pattern: As indicated on Drawings.

C. Color: White.

D. Light Reflectance (LR): Not less than 0.80.

E. Ceiling Attenuation Class (CAC): Not less than 35.

F. Noise Reduction Coefficient (NRC): Not less than 0.55.

G. Edge/Joint Detail: As indicated on Drawings.

H. Thickness: 5/8 inch minimum.

I. Modular Size: As indicated on Drawings.

2.4 METAL SUSPENSION SYSTEM

A. Metal Suspension-System Standard: Provide manufacturer's standard, direct-hung, metal suspension system and accessories according to ASTM C 635/C 635M and designated by type, structural classification, and finish indicated.

B. Wide-Face, Capped, Double-Web, Steel Suspension System: Main and cross runners roll formed from cold-rolled steel sheet; prepainted, electrolytically zinc coated, or hot-dip galvanized, G30 coating designation; with prefinished 15/16-inch-wide metal caps on flanges.

1. Structural Classification: Heavy-duty system.
2. End Condition of Cross Runners: Override (stepped) or butt-edge type.
3. Face Design: Flat, flush.
4. Cap Material: Cold-rolled steel.
5. Cap Finish: Painted white.

2.5 ACCESSORIES

A. Attachment Devices: Size for five times the design load indicated in ASTM C 635/C 635M, Table 1, "Direct Hung," unless otherwise indicated. Comply with seismic design requirements.

B. Wire Hangers, Braces, and Ties: Provide wires as follows:

1. Zinc-Coated, Carbon-Steel Wire: ASTM A 641/A 641M, Class 1 zinc coating, soft temper.
2. Size: Wire diameter sufficient for its stress at three times hanger design load (ASTM C 635/C 635M, Table 1, "Direct Hung") will be less than yield stress of wire, but not less than 0.135-inch- diameter wire.

C. Seismic Clips: Manufacturer's standard seismic clips designed to secure acoustical panels in place during a seismic event.

D. Seismic Stabilizer Bars: Manufacturer's standard perimeter stabilizers designed to accommodate seismic forces.

E. Seismic Struts: Manufacturer's standard compression struts designed to accommodate seismic forces.

2.6 METAL EDGE MOLDINGS AND TRIM

A. Roll-Formed, Sheet-Metal Edge Moldings and Trim: Type and profile indicated or, if not indicated, manufacturer's standard moldings for edges and penetrations that comply with seismic design requirements; formed from sheet metal of same material, finish, and color as that used for exposed flanges of suspension-system runners.

1. Edge moldings shall fit acoustical panel edge details and suspension systems indicated and match width and configuration of exposed runners.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates, areas, and conditions, including structural framing to which acoustical panel ceilings attach or abut, with Installer present, for compliance with requirements specified in this and other Sections that affect ceiling installation and anchorage and with requirements for installation tolerances and other conditions affecting performance of acoustical panel ceilings.

B. Examine acoustical panels before installation. Reject acoustical panels that are wet, moisture damaged, or mold damaged.

C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Measure each ceiling area and establish layout of acoustical panels to balance border widths at opposite edges of each ceiling. Avoid using less-than-half-width panels at borders unless otherwise indicated and comply with layout shown on reflected ceiling plans.

B. Layout openings for penetrations centered on the penetrating items.

3.3 INSTALLATION

A. Install acoustical panel ceilings according to ASTM C 636/C 636M and ASTM E 580, seismic design requirements, and manufacturer's written instructions.

B. Suspend ceiling hangers from building's structural members and as follows:

1. Install hangers plumb and free from contact with insulation or other objects within ceiling plenum that are not part of supporting structure or of ceiling suspension system.
2. Splay hangers only where required to miss obstructions; offset resulting horizontal forces by bracing, countersplaying, or other equally effective means.
3. Where width of ducts and other construction within ceiling plenum produces hanger spacings that interfere with location of hangers at spacings required to support standard suspension-system members, install supplemental suspension members and hangers in form of trapezes or equivalent devices.

4. Secure wire hangers to ceiling-suspension members and to supports above with a minimum of three tight turns. Connect hangers directly to structure or to inserts, eye screws, or other devices that are secure and appropriate for substrate and that will not deteriorate or otherwise fail due to age, corrosion, or elevated temperatures.
5. When steel framing does not permit installation of hanger wires at spacing required, install carrying channels or other supplemental support for attachment of hanger wires.
6. Do not attach hangers to steel roof deck. Attach hangers to structural members.
7. Space hangers not more than 48 inches o.c. along each member supported directly from hangers unless otherwise indicated; provide hangers not more than 8 inches from ends of each member.
8. Size supplemental suspension members and hangers to support ceiling loads within performance limits established by referenced standards.

C. Secure bracing wires to ceiling suspension members and to supports with a minimum of four tight turns. Suspend bracing from building's structural members as required for hangers. Hanger wires supporting light fixtures shall be within 6-inches of the corner of the fixture.

1. Rooms where more than 50 percent of the grid is removed shall be seismically braced in their entirety.

D. Install edge moldings and trim of type indicated at perimeter of acoustical ceiling area and where necessary to conceal edges of acoustical panels.

1. Screw attach moldings to substrate at intervals not more than 16 inches o.c. and not more than 3 inches from ends. Miter corners accurately and connect securely.
2. Do not use exposed fasteners, including pop rivets, on moldings and trim.

E. Install suspension-system runners so they are square and securely interlocked with one another. Remove and replace dented, bent, or kinked members.

F. Install acoustical panels with undamaged edges and fit accurately into suspension-system runners and edge moldings. Scribe and cut panels at borders and penetrations to provide precise fit.

1. Arrange directionally patterned acoustical panels as follows:

a. As indicated on reflected ceiling plans.

2. For square-edged panels, install panels with edges fully hidden from view by flanges of suspension-system runners and moldings.
3. For reveal-edged panels on suspension-system runners, install panels with bottom of reveal in firm contact with top surface of runner flanges.
4. Paint cut edges of panel remaining exposed after installation; match color of exposed panel surfaces using coating recommended in writing for this purpose by acoustical panel manufacturer.
5. Install seismic clips in areas according to panel manufacturer's written instructions.

a. Hold-Down Clips: Space 24 inches o.c. on all cross runners.

3.4 ERECTION TOLERANCES

A. Suspended Ceilings: Install main and cross runners level to a tolerance of 1/8 inch in 12 feet, non-cumulative.

B. Moldings and Trim: Install moldings and trim to substrate and level with ceiling suspension system to a tolerance of 1/8 inch in 12 feet, non-cumulative.

3.5 FIELD QUALITY CONTROL

A. Special Inspections: Owner will engage a qualified special inspector to perform the following special inspections:

1. Periodic inspection during the installation of suspended ceiling grids according to ASCE/SEI 7.

3.6 CLEANING

A. Clean exposed surfaces of acoustical panel ceilings, including trim, edge moldings, and suspension-system members. Comply with manufacturer's written instructions for cleaning and touchup of minor finish damage.

B. Remove and replace ceiling components that cannot be successfully cleaned and repaired to permanently eliminate evidence of damage.

END OF SECTION

PAINTING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

B. Notification of Potential Hazards: Asbestos, lead and other potentially hazardous materials are present in the building that may impact the work of all trades. Regulated air contaminants, including asbestos and lead, are also present in settled and concealed dust in and on architectural, structural, mechanical and electrical components or systems throughout the building. All trades shall coordinate with other trades and conduct their work to prevent worker exposure or site contamination. Refer to Specification Divisions 0, 1 and 2 for specific information concerning disturbing, removing and disposing of these materials and the installation of new materials or components. This notification is provided in accordance with EPA and OSHA requirements.

C. Notification of Child Occupied Facility: Portions of this building are classified as a Child Occupied Facility in accordance with 40 CFR 745 and lead-based paints may be present on components to be disturbed in those areas. Personnel performing work in these areas must comply with the requirements of 40 CFR 745, including training, work practices and cleaning of the work area. Refer to Specification Divisions 0, 1 and 2 for specific information concerning disturbing, removing and disposing of lead materials and the installation of new materials or components. This notification is provided in accordance with EPA and OSHA requirements.

1.2 SUMMARY

A. This Section includes surface preparation and field painting of exterior cementitious, ferrous metal, and metal faced plywood panels and exposed interior ferrous metal, exterior plaster, and gypsum board.

1.3 DEFINITIONS

A. General: Standard coating terms defined in ASTM D 16 apply to this Section.

1. Flat refers to a lusterless or matte finish with a gloss range below 15 when measured at an 85-degree meter.
2. Eggshell refers to low-sheen finish with a gloss range between 20 and 35 when measured at a 60-degree meter.
3. Semigloss refers to medium-sheen finish with a gloss range between 35 and 70 when measured at a 60-degree meter.

1.4 ACTION SUBMITTALS

A. Product Data: For each type of product. Include preparation requirements and application instructions.

B. Sustainability Submittals:

1. Product Data: For interior paints and coatings, including printed statement of VOC content.
2. Laboratory Test Reports: For interior paints and coatings, documentation indicating that they meet the testing and product requirements of the California Department of Health Services' "Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers."

C. Samples for Verification: For each type of paint system and each color and gloss of topcoat.

1. Submit four Samples on 8-by-10 inch cardstock for Architect's review of color and texture only:
2. Step coats on Samples to show each coat required for system.
3. Label each coat of each Sample.

D. Product List: For each product indicated, include the following:

1. Cross-reference to paint system. Use same designations indicated.
2. VOC content.

1.5 QUALITY ASSURANCE

A. Applicator Qualifications: A firm or individual experienced in applying paints and coatings similar in material, design, and extent to those indicated for this Project, whose work has resulted in applications with a record of successful in-service performance.

B. Source Limitations: Obtain primers for each coating system from the same manufacturer as the finish coats.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Deliver materials to Project site in manufacturer's original, unopened packages and containers bearing manufacturer's name and label.

B. Store materials not in use in tightly covered containers in well-ventilated areas with ambient temperatures continuously maintained at not less than 45 deg F.

1. Maintain containers in clean condition, free of foreign materials and residue.
2. Remove rags and waste from storage areas daily.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

1. PPG Industries, Inc. (Pittsburgh Paints).
2. Rhodda Paint Co.
3. Sherwin-Williams Co. (Sherwin-Williams).

B. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include but are not limited to products listed in other Part 2 articles for the paint category indicated.

2.2 PAINT MATERIALS, GENERAL

A. Material Compatibility:

1. Provide materials for use within each paint system that are compatible with one another and substrates indicated, under conditions of service and application as demonstrated by manufacturer, based on testing and field experience.
2. For each coat in a paint system, provide products recommended in writing by manufacturers of topcoat for use in paint system and on substrate indicated.

B. Material Quality: Provide manufacturer's best-quality paint material of the various coating types specified that are factory formulated and recommended by manufacturer for application indicated. Paint-material containers not displaying manufacturer's product identification will not be acceptable.

1. Proprietary Names: Use of manufacturer's proprietary product names to designate colors or materials is not intended to imply that products named are required to be used to the exclusion of equivalent products of other manufacturers. Furnish manufacturer's material data and certificates of performance for proposed substitutions.

C. VOC Content: Products shall comply with VOC limits of authorities having jurisdiction and, for interior paints and coatings applied at Project site, the following VOC limits, exclusive of colorants added to a tint base, when calculated according to 40 CFR 59, Subpart D (EPA Method 24).

1. Flat Paints and Coatings: 50 g/L.
2. Nonflat Paints and Coatings: 150 g/L.
3. Primers, Sealers, and Undercoaters: 200 g/L.

D. Low-Emitting Materials: Interior paints and coatings shall comply with the testing and product requirements of the California Department of Health Services' "Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers."

E. Colors: Match existing color and sheen is not specifically indicated on Drawings.

2.3 EXTERIOR PRIMERS

A. Exterior Metal Primer: Factory-formulated acrylic primer for exterior application.

1. Pittsburgh Paints; Gripper Interior/Exterior Universal Acrylic Primer/Sealer 3210-1200G Series: Applied at a dry film thickness of not less than 1.6 mils.
2. Rodda; XIM-03 UMA Advanced Technology Primer sealer bonder: Applied at a dry film thickness of not less than 1.0 mils.
3. Sherwin-Williams; Extreme Bond Primer BW51W01150: Applied at a dry film thickness of not less than 1.0 mils.

B. Exterior Ferrous-Metal Primer: Factory-formulated rust-inhibitive metal primer for exterior application.

1. Pittsburgh Paints; 90-712 Pitt-Tech One Pack Interior/Exterior Primer Finish DTM Industrial Enamel: Applied at a dry film thickness of not less than 3.0 mils.
2. Rodda; 708225 Barrier III High Solids Metal Primer: Applied at a dry film thickness of not less than 1.5 mils.
3. Sherwin-Williams; Pro Industrial Pro-Cryl Universal Primer B66W00310: Applied at a dry film thickness of not less than 2.0 mils.

2.4 INTERIOR PRIMERS

A. Interior Gypsum Board Primer: Factory-formulated latex-based primer for interior application.

1. Pittsburgh Paints; 6-2 SpeedHide Interior Quick-Drying Latex Sealer: Applied at a dry film thickness of not less than 1.0 mil.
2. Rodda; 50701 Roseal Gypsum Primer: Applied at a dry film thickness of not less than 1.5 mils
3. Sherwin-Williams; ProMar 200 Zero VOC Interior Latex Primer B28W02600 Series: Applied at a dry film thickness of not less than 1.0 mils.

B. Interior Zinc-Coated Metal Primer: Factory-formulated galvanized metal primer.

1. Pittsburgh Paints; 90-712 Pitt-Tech One Pack Interior/Exterior Primer/Finish DTM Industrial Enamel: Applied at a dry film thickness of not less than 2.0 mils.
2. Rodda; 508901 Metal Master 100% Acrylic Primer: Applied at a dry film thickness of not less than 1.5 mils.
3. Sherwin-Williams; Pro Industrial Pro-Cryl Universal Primer B66W00310: Applied at a dry film thickness of not less than 3.0 mils.

2.5 EXTERIOR FINISH COATS

A. Exterior Semigloss Acrylic Enamel: Factory-formulated semigloss waterborne acrylic-latex enamel for exterior application.

1. Pittsburgh Paints; 6-900XI Series SpeedHide Exterior House & Trim Semi-Gloss Acrylic Latex Paint: Applied at a dry film thickness of not less than 1.5 mils.
2. Rodda: 542001 Unique II 100% Acrylic Semi-Gloss Enamel: Applied at a dry film thickness of not less than 1.5 mils.
3. Sherwin-Williams; Conflex Sherlastic Elastomeric Coating CF-16W005X Series: Applied at a dry film thickness of not less than 8.6 mils.

B. Exterior Flat Acrylic Paint: Factory-formulated flat acrylic-emulsion latex paint for exterior application.

1. Pittsburgh Paints; 6-610XI Series SpeedHide Exterior House Paint Flat Latex: Applied at a dry film thickness of not less than 1.3 mils (0.033 mm).
2. Rodda: 511901 AC-910 100% Acrylic Flat Exterior Paint: Applied at a dry film thickness of not less than 1.5 mils (0.038 mm).
3. Sherwin-Williams; A-100 Exterior Latex Flat House & Trim Paint A6 Series: Applied at a dry film thickness of not less than 1.3 mils (0.033 mm).

********** OR **********

C. Exterior Satin Polysiloxane Coating: Factory-formulated two-component satin siloxane coating for exterior application.

1. Pittsburgh Paints; PSX 805: Applied at a dry film thickness of not less than 3.0 mils.
2. Rodda: 511901 AC-910 100% Acrylic Flat Exterior Paint: Applied at a dry film thickness of not less than 1.5 mils.
3. Sherwin-Williams; A-100 Exterior Latex Flat House & Trim Paint A6 Series: Applied at a dry film thickness of not less than 1.3 mils.

D. Exterior Flat Elastomeric Coating: Factory-formulated flat acrylic latex paint for exterior application.

1. Pittsburgh Paints; 4-100 Series Perma-Crete Pitt-Flex Elastomeric Coating - Smooth: Applied at a dry film thickness of not less than 5.4 mils.
2. Rodda: 51230X Phlex-Tite Exterior Elastomeric Primer/Finish Coating: Applied at a dry film thickness of not less than 7.5 mils.
3. Sherwin-Williams; Solo 100% Acrylic Interior/Exterior Semi-Gloss A76 Series: Applied at a dry film thickness of not less than 4.0 mils.

2.6 INTERIOR FINISH COATS

A. Interior Flat Acrylic Paint: Factory-formulated flat acrylic-emulsion latex paint for interior application.

1. Pittsburgh Paints; 6-70 Line SpeedHide Interior Wall Flat-Latex Paint: Applied at a dry film thickness of not less than 1.0 mil.
2. Rodda; 513101 Master Painter Int. Latex Flat Wall Paint: Applied at a dry film thickness of not less than 1.5 mils
3. Sherwin-Williams; ProMar 200 Interior Latex Flat Wall Paint B30W200 Series: Applied at a dry film thickness of not less than 1.4 mils.

B. Interior Low-Luster Acrylic Enamel: Factory-formulated eggshell acrylic-latex interior enamel.

1. Pittsburgh Paints; 6-411 Series SpeedHide Eggshell Acrylic Latex Enamel: Applied at a dry film thickness of not less than 1.25 mils.
2. Rodda; 533001 Lasyn Eggshell Finish Wall Paint: Applied at a dry film thickness of not less than 1.5 mils
3. Sherwin-Williams; ProMar 200 Interior Latex Egg-Shell Enamel B20W200 Series: Applied at a dry film thickness of not less than 1.6 mils.

C. Interior Semigloss Acrylic Enamel: Factory-formulated semigloss acrylic-latex enamel for interior application.

1. Pittsburgh Paints; 6-714 Series SpeedHide Interior Dry-Fog Spray Paint Semi-Gloss Latex: Applied at a dry film thickness of not less than 2.6 mil.
2. Rodda; 05135 Professional Latex Dryfall Semi-Gloss White Base: Applied at a dry film thickness of not less than 1.5 mils.
3. Sherwin-Williams; Pro Industrial Waterborne Acrylic Dryfall Semi-Gloss, B42 Series: Applied at a dry film thickness of not less than 2.3 mils.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates and conditions, with Applicator present, for compliance with requirements for maximum moisture content and other conditions affecting performance of the Work.

B. Maximum Moisture Content of Substrates: When measured with an electronic moisture meter as follows:

1. Gypsum Board: 12 percent.

C. Gypsum Board Substrates: Verify that finishing compound is sanded smooth.

D. Verify suitability of substrates, including surface conditions and compatibility with existing finishes and primers.

E. Proceed with coating application only after unsatisfactory conditions have been corrected.

1. Application of coating indicates acceptance of surfaces and conditions.

3.2 PREPARATION

A. General: Remove hardware, covers, plates, and similar items already in place that are removable and are not to be painted. If removal is impractical or impossible because of size or weight of item, provide surface-applied protection before surface preparation and painting.

1. After completing painting operations, use workers skilled in the trades involved to reinstall items that were removed. Remove surface-applied protection.

B. Clean substrates of substances that could impair bond of paints, including dust, dirt, oil, grease, and incompatible paints and encapsulants.

1. Remove incompatible primers and reprime substrate with compatible primers or apply tie coat as required to produce paint systems indicated.

C. Surface Preparation: Clean and prepare surfaces to be painted according to manufacturer's written instructions for each particular substrate condition and as specified.

1. Provide barrier coats over incompatible primers or remove and reprime.

D. Steel Substrates: Remove rust, loose mill scale, and shop primer if any. Clean using methods recommended in writing by paint manufacturer**.**

E. Galvanized-Metal Substrates: Remove grease and oil residue from galvanized sheet metal by mechanical methods to produce clean, lightly etched surfaces that promote adhesion of subsequently applied paints.

3.3 APPLICATION

A. General: Apply paint according to manufacturer's written instructions.

1. Use applicators and techniques suited for paint and substrate indicated.

B. If undercoats or other conditions show through topcoat, apply additional coats until cured film has a uniform paint finish, color, and appearance.

C. Apply paints to produce surface films without cloudiness, spotting, holidays, laps, brush marks, roller tracking, runs, sags, ropiness, or other surface imperfections. Cut in sharp lines and color breaks.

D. Prime Coats: Before applying finish coats, apply a prime coat, as recommended by manufacturer, to material that is required to be painted or finished and that has not been prime coated by others. Recoat primed and sealed surfaces where evidence of suction spots or unsealed areas in first coat appears, to ensure a finish coat with no burn-through or other defects due to insufficient sealing.

E. Pigmented (Opaque) Finishes: Completely cover surfaces as necessary to provide a smooth, opaque surface of uniform finish, color, appearance, and coverage. Cloudiness, spotting, holidays, laps, brush marks, runs, sags, ropiness, or other surface imperfections will not be acceptable.

F. Completed Work: Match adjacent surfaces for color, texture, sheen, and coverage. Remove, refinish, or repaint work not complying with requirements.

3.4 CLEANING AND PROTECTION

A. At end of each workday, remove rubbish, empty cans, rags, and other discarded materials from Project site.

B. After completing paint application, clean spattered surfaces. Remove spattered paints by washing, scraping, or other methods. Do not scratch or damage adjacent finished surfaces.

C. Protect work of other trades against damage from paint application. Correct damage to work of other trades by cleaning, repairing, replacing, and refinishing, as approved by Architect, and leave in an undamaged condition.

D. At completion of construction activities of other trades, touch up and restore damaged or defaced painted surfaces.

3.5 EXTERIOR PAINT SCHEDULE

A. Cementitious Substrates: Provide the following finish systems over exterior cementitious substrates including EIFS.

1. Flat Elastomeric Coating: Two finish coats over a primer.

a. Primer: Exterior Ferrous-metal primer.
b. Finish Coats: Exterior flat elastomeric coating.

B. Ferrous Metal: Provide the following finish systems over metal faced plywood panels.

1. Flat Acrylic Enamel Finish: Two finish coats over an etching primer.

a. Primer: Exterior etching metal primer.
b. Finish Coats: Exterior flat acrylic enamel.

C. Ferrous Metal: Provide the following finish systems over exterior ferrous metal. Primer is not required on shop-primed items.

1. Semi-Gloss Acrylic Enamel Finish: Two finish coat over a rust-inhibitive primer.

a. Primer: Exterior Ferrous-metal primer.
b. Finish Coats: Exterior semi-gloss acrylic enamel.

3.6 INTERIOR PAINT SCHEDULE

A. Gypsum Board: Provide the following finish systems over interior gypsum board surfaces:

1. Flat Acrylic Finish: Two finish coats over a primer.

a. Primer: Interior gypsum board primer.
b. Finish Coats: Interior flat acrylic paint.

2. Low-Luster Acrylic-Enamel Finish: Two finish coats over a primer.

a. Primer: Interior gypsum board primer.
b. Finish Coats: Interior low-luster acrylic enamel.

3. Sheens vary. Field verify sheen and match existing.

B. Ferrous Metal: Provide the following finish systems over ferrous metal:

1. Flat Acrylic Finish: Two finish coats over a primer.

a. Primer: Factory primer.
b. Finish Coats: Interior flat acrylic paint.

2. Low-Luster Acrylic-Enamel Finish: Two finish coats over a primer.

a. Primer: Factory primer.
b. Finish Coats: Interior low-luster acrylic enamel.

3. Sheens vary. Field verify sheen and match existing of adjacent gypsum board.

C. Zinc-Coated Metal: Provide the following finish systems over interior zinc-coated metal surfaces:

1. Semigloss Acrylic-Enamel Finish: Two finish coats over a primer.

a. Primer: Interior zinc-coated metal primer.
b. Finish Coats: Interior semi-gloss acrylic enamel.

END OF SECTION

COMMON WORK RESULTS FOR PLUMBING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Asbestos, lead, and other hazardous materials are present in the building and may impact the work of all trades. Regulated air contaminates, including asbestos and lead, are also present in settled and concealed dust in and on architectural, structural, mechanical, and electrical components or systems throughout the building. All trades shall coordinate with other trades and conduct their work to prevent worker exposure or site contamination. Refer to Specification Section 02 26 00, hazardous materials survey report and Section 01 35 45, airborne contaminant control for specific information concerning disturbing, removing, and disposing of these materials and the installation of new materials or components. This notification is provided in accordance with EPA and OSHA requirements.

B. Notification of Child Occupied Facility: Portions of this building are classified as a Child Occupied Facility in accordance with 40 CFR 745 and lead-based paints may be present on components to be disturbed in those areas. Personnel performing work in these areas must comply with the requirements of 40 CFR 745, including training, work practices and cleaning of the work area. Refer to Specification Divisions 0, 1 and 2 for specific information concerning disturbing, removing and disposing of lead materials and the installation of new materials or components. This notification is provided in accordance with EPA and OSHA requirements.

1.2 SCOPE

A. All provisions of the Contract including the General and Supplementary Conditions, and the General Requirements apply to this work.

1.3 WORK INCLUDED

A. The work to be included in these and all other mechanical subsections shall consist of providing, installing, adjusting and setting into proper operation, complete and workable systems for all items shown on the drawings, described in the specifications or reasonably implied. This shall include the planning and supervision to coordinate the work with other crafts and to maintain a proper time schedule for delivery of materials and installation of the work.

B. Division 1 of the specifications is to be specifically included as well as all related drawings.

1.4 RELATED WORK

A. Related Work Specified Elsewhere:
   1. HVAC Specifications: Division 23
   2. Electrical Specifications: Division 26
   3. Motors and Connections: Division 26
   4. Starters and Disconnects: Division 26

B. Unless otherwise indicated on the electrical drawings or the electrical schedules, provide all mechanical equipment motors, motor starters, thermal overload switches, control relays, time clocks, thermostats, motor operated valves, float controls, damper motors, electric-pneumatic and pneumatic electric switches, electrical components, wiring and any other miscellaneous Division 23 controls. Disconnect switches are included in the electrical work, unless specifically called out on mechanical plans.

C. Carefully coordinate all work with the electrical work shown and specified elsewhere.

1.5 REFERENCED CODES - LATEST ADOPTED EDITION

A. NFPA 13 Installation of Sprinkler Systems

B. NFPA 70 National Electrical Code (NEC), 2020 Edition

C. IMC International Mechanical Code, 2018 Edition

D. UPC Uniform Plumbing Code, 2018 Edition

E. IFC International Fire Code, 2018 Edition

F. IFGC International Fuel Gas Code, 2018 Edition

G. IBC International Building Code, 2018 Edition

H. IECC International Energy Conservation Code, 2018 Edition

1.6 SUBMITTALS

A. See General Conditions and the General Requirements in Division 1 regarding submittals.

B. Submit by specification section complete and all at one time; partial submittals will not be considered. Submittals shall be in electronic form. The data shall be arranged and indexed under basic categories. Submittal shall be bookmarked and indexed to identify sections and references to sections of specifications.

C. Catalog sheets shall be complete and the item or model to be used shall be clearly marked, and identified as to which item in the specifications or on the drawings is being submitted and with drawing fixture number where applicable.

D. *Only submit* on items specifically required by each specification section. If a submittal has not been requested, it will not be reviewed.

1.7 QUALITY ASSURANCE

A. Perform Work in accordance with State of Alaska standard and as amended by the local Authority Having Jurisdiction.

1.8 PROJECT RECORD DRAWINGS

A. In addition to other requirements of Division 1, mark up a clean set of drawings as the work progresses to show the dimensioned location and routing of all mechanical work which will become permanently concealed. Show routing of work in concealed blind spaces within the building. Show exact dimensions of buried piping off of columns or exterior walls.

B. Show the location of all valves and their appropriate tag identification.

C. Maintain record documents at job site in a clean, dry and legible condition. Keep record documents available for inspection by the Project Manager.

D. At completion of project, deliver these drawings to the Owner and/or Architect for digital As-bulits and obtain a written receipt.

1.9 HANDLING

A. See General Conditions and the General Requirements in Division 1 regarding material handling.

B. Deliver packaged materials to job site in unbroken packages with manufacturer's label, and store to facilitate inspection and installation sequence. All items must be labeled and identified as to make, size and quality.

1.10 SUBSTITUTIONS

A. See General Conditions and the General Requirements in Division 1 for substitution request procedures.

B. In accordance with the General Conditions and the General Requirements in Division 1, Substitution and Product Options, all substitute items must fit in the available space and be of equal or better quality including efficiency performance, size, and weight, and must be compatible with existing equipment. The owner shall be the final authority regarding acceptability of substitutes.

1.11 DIMENSIONS

A. Before ordering any material or doing any work, the Contractor shall verify all dimensions, including elevations, and shall be responsible for the correctness of the same. No extra charge or compensation will be allowed on account of differences between actual dimensions and measurements indicated on the drawings.

B. Any differences which may be found shall be submitted to the Anchorage School District Project Manager for consideration before proceeding with the work.

1.12 MANUFACTURER'S DIRECTIONS

A. All manufactured articles shall be applied, installed and handled as recommended by the manufacturer, unless specifically called out otherwise in the plans. Advise the Anchorage School District Project Manager of any such conflicts before installation.

1.13 PERMITS, FEES, ETC

A. The Contractor under each section of these specifications shall arrange for a permit from the local authority. The Contractor shall pay for any inspection fees or other fees and charges required by ordinance, law, codes and these specifications.

1.14 TESTING

A. The Contractor under each section shall, at his own expenses, perform the various tests as specified and required by the owner and as required by applicable code, the State, and local authorities. The Contractor shall furnish all fuel and materials necessary for making tests

1.15 TERMINOLOGY

A. Whenever the words "furnish", "provide", "furnish and install", "provide and install", and/or similar phrases occur, it is the intent that the materials and equipment described be furnished, installed and connected under this Division of the Specifications, complete for operation unless specifically noted to the contrary.

B. Where a material is described in detail, listed by catalog number or otherwise called for, it shall be the Contractor's responsibility to furnish and install the material.

C. The use of the word "shall" conveys a mandatory condition to the contract.

D. "This section" refers to the section in which the statement occurs.

E. "The project" includes all work in progress during the construction period.

F. In describing the various items of equipment, in general, each item will be described singularly, even though there may be a multiplicity of identical or similar items.

G. "Accessible" is defined as clear space for a 6 foot tall, 200 pound person with a 50 pound toolbox to be able to operate, maintain, repair, or replace equipment specified for this project.

1.16 SCHEDULE OF WORK

A. The work must be expedited, and close coordination will be required in executing the work. The various trades shall perform their portion of the work at such times as directed so as to meeting scheduled completion dates, and to avoid delaying any other trade. The owner will set up completion dates. Each contractor shall cooperate in establishing these times and locations and shall process his work so as to ensure the proper execution of it.

1.17 COOPERATION AND CLEANING UP

A. The contractor for the work under each section of the specifications shall coordinate his work with the work described in all other sections of the specifications to the end that, as a whole, the job shall be a finished one of its kind, and shall carry on his work in such a manner that none of the work under any section of these specifications shall be handicapped, hindered or delayed at any time. Failure to comply with this shall not constitute grounds for any additional payments in connection with removing or modifying any part of the existing installations and/or installing any new work.

B. At all times during the progress of the work, the Contractor shall keep the premises clean and free of unnecessary materials and debris. The Contractor shall, on direction at any time from the owner, clear any designated areas or area of materials and debris. On completion of any portion of the work, the Contractor shall remove from the premises all tools and machinery and all debris occasioned by the work, leaving the premises free of all obstructions and hindrances.

1.18 GUARANTEE

A. Unless a longer guarantee is hereinafter called for, all work, materials and equipment items shall be guaranteed for a period of one year after acceptance by the Owner. All defects in labor and materials occurring during this period, as determined by the Anchorage School District Project Manager, shall be repaired and/or replaced to the complete satisfaction of the Anchorage School District Project Manager. Warranty shall be in accordance with Division 1.

1.19 COMPLETION REQUIREMENTS

A. In accordance with the General Conditions and the General Requirements in Division 1, Project Closeout; before acceptance and final payment, the Contractor shall furnish:
   1. Accurate project record drawings, shown in red ink on prints, showing all changes from the original plans made during installation of the work.
   2. Contractor’s one year warranty.
   3. All manufacturers’ guarantees.
   4. Test and balance reports.
   5. Operation and maintenance manuals.

1.20 INSEPCTION OF SITE - REMODEL PROJECTS

A. The accompanying plans do not indicate completely the existing mechanical installations. The bidders for the work under these sections of the specifications shall inspect the existing installations and thoroughly acquaint themselves with conditions to be met and the work to be accomplished in removing and modifying the existing work, and in installing the new work in the present building and underground serving to and from that structure. Failure to comply with this shall not constitute grounds for any additional payments in connection with removing or modifying any part of the existing installations and/or installing any new work.

1.21 RELOCATION OF EXISTING INSTALLATIONS

A. There are portions of the existing fire protection, plumbing, heating, ventilation and electrical systems, which shall remain in use to serve the finished building in conjunction with the indicated new installations. By actual examination at the site, each bidder shall determine those portions of the remaining present installations, which must be relocated to avoid interference with the installations of new work of his particular trade and that of all other trades. All such existing installations, which interfere with new installations, shall be relocated by the Contractor.

1.22 SALVAGE MATERIALS

A. The Contractor shall remove existing equipment and other items associated with the mechanical systems where no longer required for the project. Where such items are exposed to view or uncovered by any cutting or removal of general construction and has no continuing function (as determined by the Architect/Engineer), they shall be removed.

B. All items or materials removed from the project shall be made available for the Owner's inspection. The Owner retains the option to claim any item or material. The Contractor shall deliver any claimed item or material in good condition to the place designated by the Owner. All items not claimed become the property of the Contractor and shall be removed from the site by the Contractor.

PART 2 - PRODUCTS

2.1 MATERIALS

A. All equipment shall be regularly cataloged items of the manufacturer and shall be supplied as a complete unit in accordance with the manufacturer's standard specifications along with any optional items required for proper installation unless otherwise noted. Maintain manufacturer's identification, model number, etc. on all equipment at all times.

B. Where more than one of an item is to be provided, all of the items shall be identical manufacture, make, model, color, etc.

2.2 RESTRICTED MATERIALS

A. No materials containing asbestos in any form shall be allowed. Where materials or equipment provided by this Contractor are found to contain asbestos, such items shall be removed and replaced with non-asbestos items. The entire cost of asbestos removal and disposal and cost of installing new items shall be the responsibility of the Contractor for those asbestos containing items installed by the Contractor.

B. No solder or flux containing lead shall be used on this project.

C. Any pipe or plumbing fitting or fixture, any solder, or any flux utilized on this project shall be “lead free” in accordance with the Safe Drinking Water Act, Section 1417. “Lead free” materials utilized in domestic water system shall not contain more than 0.2 percent lead when used with respect to solder and flux; and not more than a weighted average of 0.25 percent lead when used with respect to the wetted surfaces of pipes, pipe fittings, plumbing fittings, and fixtures. All materials utilized in domestic water system shall be certified by an ANSI accredited organization to conform to ANSI/NSF Standard 61.”

D. Where materials or equipment provided by this Contractor are found to contain restricted materials, such items shall be removed and replaced with non-restricted materials items. Entire cost of restricted materials removal and disposal and cost of installing new items shall be the responsibility of the Contractor for those restricted materials containing items installed by the Contractor.

PART 3 - EXECUTION

3.1 DRAWINGS

A. The mechanical drawings are generally diagrammatic. Complete details of the building, which affect the mechanical installation, may not be shown. For additional details, see Architectural, Hazmat and Electrical Drawings. Coordinate work under this section with that of all related trades.

3.2 INSTALLATION

A. All work shall comply with the latest adopted applicable codes and ordinances including, but not limited to, the NFPA, IMC, IFC, UPC, IFGC and IBC Standards; all local and state amendments to all codes and standards.

B. Obtain and pay for all inspection fees, connection charges and permits as a part of the Contract.

C. Compliance with codes and ordinances shall be at the Contractor's expense.

3.3 MEASUREMENTS

A. Verify all measurements on the job site.

B. Locate all equipment and fixtures on the centers of walls, openings, spaces, etc., unless specified otherwise.

C. Check all piping, ducts, etc. to clear openings.

D. Rough-in dimensions shall be per manufacturer's recommendations and in compliance with ADA and ANSI 117.1 Guidelines.

3.4 OPERATING INSTRUCTIONS

A. Before the facility is turned over to the Owner, instruct the Owner or Owner's personnel in the operation, care and maintenance of all systems and equipment under the jurisdiction of the Mechanical Division. These instructions shall also be included in a written summary in the Operating Maintenance Manuals.

B. The Operation and Maintenance Manuals shall be utilized for the basis of the instruction. Provide a minimum of four hours of onsite instruction to the owner designated personnel.

C. When required by individual specifications sections provide additional training on plumbing systems and equipment.

3.5 OPERATION AND MAINTENANCE MANUALS

A. Submit maintenance manuals to the Engineer covering all equipment, fixtures, devices, etc. installed by the Contractor. Submit prior to substantial completion.

B. The operation and maintenance manuals shall be submitted by specification section complete and all at one time; partial operations and maintenance manual submittals will not be considered. The operation and maintenance manuals shall be provided for review in electronic PDF Format. The data in the electronic file shall be arranged and indexed under basic categories. An index shall be included with bookmarks and identifying tabs between sections and references to sections of specifications. Final operation and maintenance manuals shall be bound in a loose leaf three ring binder with reinforced holes in the sheets so as to prevent lost pages. The manual shall contain, but not limited to, the following types of information:
   1. Cover sheet with name, address, telephone number of Contractor, General Contractor and major equipment suppliers.
   2. Catalog cuts of all equipment, fixtures, etc. installed (Marked to identify the specific items used).
   3. Manufacturer's maintenance and overhaul instruction booklets including exploded views.

4. Identification numbers of all parts and nearest sources for obtaining parts and services.
5. A copy of valve schedule and reduced scale drawings showing valve locations.
6. Written summary of instructions to Owner.
7. All manufacturers' warranties and guarantees.

C. A periodic maintenance form that includes all of the equipment shall be provided with the maintenance manual. The form shall list each piece of equipment and how often maintenance is required (daily, weekly, monthly, annually). Opposite each task shall be squares for check-off for a full year (initials) to verify that the tasks are being done.

3.6 CUTTING, FITTING, PATCHING AND FINISH

D. Arrange and pay for all cutting, fitting, repairing, patching and finishing of work by other trades where it is necessary to disturb such work to permit installation of mechanical work. Perform work only with craftsmen skilled in their respective trades.

E. Avoid cutting, insofar as possible, by setting sleeves, frames, etc. and by requesting openings in advance. Assist other trades in securing correct location and placement of rough-frames, sleeves, openings, etc. for piping.

F. Cut all holes neatly and as small as possible to admit work. Include cutting where sleeves or openings have been omitted. Perform cutting in a manner so as not to weaken walls, partitions or floors. Drill holes required to be cut in floors without breaking out around holes.

3.7 PAINTING

G. Perform all of the following painting in accordance with provisions of Division 9 with colors as selected by the Architect. Provide the following items as a part of mechanical work:
1. Factory applied prime and finish coats on mechanical equipment.
2. Factory applied prime coat on access doors.
3. Pipe identification where specified.

H. If the factory finish on any equipment furnished is damaged in shipment or during construction, refinish to equal original factory finish.

3.8 INSTALLATION OF EQUIPMENT

I. Unless otherwise indicated, mount all equipment and install in accordance with manufacturer's recommendations and approved submittals.

J. Maintain manufacturer's recommended minimum clearances for access and maintenance.

K. Where equipment is to be anchored to structure, furnish and locate necessary anchoring and vibration isolation devices.

L. Furnish all structural steel, such as angles, channels, beams, etc. required to support all piping, equipment and accessories installed under this Division. Use structural supports suitable for equipment specified or as indicated. In all cases, support design will be based upon data contained in the manufacturer's catalog.

M. Openings: Arrange for necessary openings in buildings to allow for admittance and reasonable maintenance or replacement of all apparatus furnished under this Contract.

N. Access Doors: Provide as necessary for reasonable maintenance of all equipment valves, water hammer arrestors, trap primers, and controls, etc.

END OF SECTION

HANGERS AND SUPPORTS FOR PLUMBING PIPING AND EQUIPMENT

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Asbestos, lead, and other hazardous materials are present in the building and may impact the work of all trades. Regulated air contaminates, including asbestos and lead, are also present in settled and concealed dust in and on architectural, structural, mechanical, and electrical components or systems throughout the building. All trades shall coordinate with other trades and conduct their work to prevent worker exposure or site contamination. Refer to Specification Section 02 26 00, hazardous materials survey report and Section 01 35 45, airborne contaminant control for specific information concerning disturbing, removing, and disposing of these materials and the installation of new materials or components. This notification is provided in accordance with EPA and OSHA requirements.

B. Notification of Child Occupied Facility: Portions of this building are classified as a Child Occupied Facility in accordance with 40 CFR 745 and lead-based paints may be present on components to be disturbed in those areas. Personnel performing work in these areas must comply with the requirements of 40 CFR 745, including training, work practices and cleaning of the work area. Refer to Specification Divisions 0, 1 and 2 for specific information concerning disturbing, removing and disposing of lead materials and the installation of new materials or components. This notification is provided in accordance with EPA and OSHA requirements.

1.2 SUMMARY

A. Section Includes:

1. Pipe hangers and supports.
2. Hanger rods.
3. Flashing and sealing equipment and pipe stacks
4. Sleeves and seals
5. Formed steel channel.

B. Products furnished but installed under other sections

1. Furnish hangers and supports for placement of formwork.
2. Placement of equipment roof support curbs.

1.3 RELATED SECTIONS

A. Division 7 – Fire Stopping: Product requirements for joint seals for piping and duct penetrations of fire rated assemblies.

B. Division 9 - Painting and Coating: Product and execution requirements for painting specified by this section.

C. Section 22 05 00 – Common work Results for Plumbing Execution requirements for placement of hangers and supports specified by this section.

D. Section 22 05 53 – Identification for Plumbing Piping and Equipment.

E. Section 22 10 00 – Plumbing Piping.

1.4 REFERENCES

A. American Society of Mechanical Engineers:

1. ASME B31.1 - Power Piping.
2. ASME B31.5 - Refrigeration Piping.
3. ASME B31.9 - Building Services Piping.

B. ASTM International:

1. ASTM F708 - Standard Practice for Design and Installation of Rigid Pipe Hangers.

C. FM Global:

1. FM - Approval Guide, A Guide to Equipment, Materials & Services Approved By Factory Mutual Research For Property Conservation.

D. Manufacturers Standardization Society of the Valve and Fittings Industry:

1. MSS SP 58 - Pipe Hangers and Supports - Materials, Design and Manufacturer.
2. MSS SP69 - Pipe Hangers and Supports - Selection and Application.
3. MSS SP 89 - Pipe Hangers and Supports - Fabrication and Installation Practices.

1.5 REGULATORY REQUIREMENTS

A. Conform to applicable code for support of plumbing piping

1.6 SUBMITTALS

A. Division 1 - Submittal Procedures: Submittal procedures.

B. Product Data: Submit manufacturers catalog data including load capacity.

C. Manufacturer's Installation Instructions: Submit special procedures and assembly of components.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Division 1 - Product Requirements: Requirements for transporting, handling, storing, and protecting products.

B. Protect from weather and construction traffic, dirt, water, chemical, and damage, by storing in original packaging.

1.8 WARRANTY

A. Division 1 - Execution and Closeout Requirements: Product warranties and product bonds.

PART 2 - PRODUCTS

2.1 PIPE HANGERS AND SUPPORTS

A. Manufacturers:

1. Michigan Hanger Company.
2. B-Line Systems, Inc.
3. Substitutions: Division 1 - Product Requirements.

B. Plumbing Piping - DWV:

1. Conform to MSS SP58.
2. Hangers for Pipe Sizes 1/2 to 1-1/2 inch: Malleable iron, adjustable swivel, split ring.
3. Hangers for Pipe Sizes 2 inches and Larger: Carbon steel, adjustable, clevis.
4. Multiple or Trapeze Hangers: Steel channels with welded spacers and hanger rods.
5. Wall Support for Pipe Sizes 3 inches and Smaller: Cast iron hook.
6. Wall Support for Pipe Sizes 4 inches and Larger: Welded steel bracket and wrought steel clamp.
7. Vertical Support: Steel riser clamp.

2.2 ACCESSORIES

A. Hanger Rods: Mild steel threaded both ends, threaded on one end, or continuous threaded.

B. Shield for Insulated Piping 1-½ Inches and Smaller: 18-gauge galvanized steel shield over insulation in 180º segments, minimum 12 inches long at pipe support.

C. Shield for Insulated Piping 2 Inches and Larger: Hard block, calcium silicate inserts, 180° segment, 12 inch minimum length, block thickness same as insulation thickness, flame resistant vapor barrier covering and 18 gauge galvanized shield.

2.3 INSERTS

A. Inserts: Malleable iron case of galvanized steel shell and expander plug for threaded connection with lateral adjustment, top slot for reinforcing rods, lugs for attaching to forms; size inserts to suit threaded hanger rods.

2.4 FLASHING

A. Metal Flashing: 26-gauge thick galvanized steel.

B. Metal Counterflashing: 22-gauge thick galvanized steel.

C. Flexible Flashing: 47 mil thick sheet butyl compatible with roofing.

D. Caps: Steel, 22 gage minimum; 16 gauge at fire resistant elements.

2.5 SLEEVES

A. Sleeves for Pipes Through Non-fire Rated Floors: 18 gauge thick galvanized steel.

B. Sleeves for Pipes Through Non-fire Rated Beams, Walls, Footings, and Potentially Wet Floors: Steel pipe or 18 gage thick galvanized steel.

C. Sleeves for Pipes Through Fire Rated and Fire Resistive Floors and Walls, and Fireproofing: Prefabricated fire rated sleeves including seals, UL listed sealant.

D. Fire Stopping Insulation: Glass fiber type, non-combustible.

E. Sealant: Fire stop sealant in compliance with ASTM E814 and UL 1479. Refer to Division 7.

2.6 FORMED STEEL CHANNEL

A. Strut Type Pipe Hanging System: Unistrut P-1000 series; framing members shall be No. 12 gage formed steel channels, 1-5/8-inch square, conforming to ASTM A 570 GR33, one side of channel shall have a continuous slot with inturned lips; framing nut with grooves and spring 1/2 inch size, conforming to ASTM 675 GR60; screws conforming to ASTM A 307; fittings conforming to ASTM A 575; all parts enamel painted or electro-galvanized.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Division 1- Administrative Requirements: Verification of existing conditions before starting work.

B. Verify openings are ready to receive sleeves.

3.2 PREPARATION

A. Do not drill or cut structural members.

3.3 INSTALLATION - INSERTS

A. Install inserts for placement in concrete forms.

B. Install inserts for suspending hangers from reinforced concrete slabs and sides of reinforced concrete beams.

C. Provide hooked rod to concrete reinforcement section for inserts carrying pipe 4 inches and larger.

D. Where concrete slabs form finished ceiling, locate inserts flush with slab surface.

E. Where inserts are omitted, drill through concrete slab from below and provide through-bolt with recessed square steel plate and nut above slab.

3.4 INSTALLATION - PIPE HANGERS AND SUPPORTS

A. Install in accordance with ASME 31.9, ASTM F708, and MSS SP 89.

B. Support horizontal piping as scheduled.

C. Install hangers with minimum 1/2 inch space between finished covering and adjacent work.

D. Place hangers within 12 inches of each horizontal elbow.

E. Use hangers with 1-1/2 inch minimum vertical adjustment.

F. Support horizontal cast iron pipe adjacent to each hub, with 5 feet maximum spacing between hangers.

G. Support vertical piping at every floor. Support vertical cast iron pipe at each floor at hub.

H. Where piping is installed in parallel and at same elevation, provide multiple pipe or trapeze hangers.

I. Support riser piping independently of connected horizontal piping.

J. Design hangers for pipe movement without disengagement of supported pipe.

K. Prime coat exposed steel hangers and supports. Refer to Division 9. Hangers and supports located in crawl spaces, pipe shafts, and suspended ceiling spaces are not considered exposed.

L. Provide clearance in hangers and from structure and other equipment for installation of insulation. Refer to Section 22 07 00.

3.5 INSTALLATION - FLASHING

A. Provide flexible flashing and metal counterflashing where piping penetrates weather or waterproofed walls, floors, and roofs. For pipes through outside walls, turn flanges back into wall and caulk, metal counter-flash and seal.

3.6 INSTALLATION - SLEEVES

A. Exterior watertight entries: Seal with mechanical sleeve seals.

B. Set sleeves in position in forms. Provide reinforcing around sleeves.

C. Size sleeves large enough to allow for movement due to expansion and contraction. Provide for continuous insulation wrapping.

D. Where piping penetrates floor, ceiling, or wall, install sleeve, close off space between pipe and adjacent work with fire stopping insulation and caulk seal. Use fire rated caulking where area or occupancy separation walls are penetrated. Provide close fitting metal collar or escutcheon covers at both sides of penetration.

E. Install chrome plated steel escutcheons at finished surfaces.

3.7 PROTECTION OF FINISHED WORK

A. Division 1 - Execution and Closeout Requirements: Requirements for protecting finished Work.

B. Protect adjacent surfaces from damage by material installation.

END OF SECTION

IDENTIFICATION FOR PLUMBING PIPING AND EQUIPMENT

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Asbestos, lead, and other hazardous materials are present in the building and may impact the work of all trades. Regulated air contaminates, including asbestos and lead, are also present in settled and concealed dust in and on architectural, structural, mechanical, and electrical components or systems throughout the building. All trades shall coordinate with other trades and conduct their work to prevent worker exposure or site contamination. Refer to Specification Section 02 26 00, hazardous materials survey report and Section 01 35 45, airborne contaminant control for specific information concerning disturbing, removing, and disposing of these materials and the installation of new materials or components. This notification is provided in accordance with EPA and OSHA requirements.

B. Notification of Child Occupied Facility: Portions of this building are classified as a Child Occupied Facility in accordance with 40 CFR 745 and lead-based paints may be present on components to be disturbed in those areas. Personnel performing work in these areas must comply with the requirements of 40 CFR 745, including training, work practices and cleaning of the work area. Refer to Specification Divisions 0, 1 and 2 for specific information concerning disturbing, removing and disposing of lead materials and the installation of new materials or components. This notification is provided in accordance with EPA and OSHA requirements.

1.2 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specifications Sections, apply to this section.

1.3 SUMMARY

A. Section Includes identification of plumbing piping and equipment installed under Division 22.

B. Related Sections:

1. Division 9 - Painting and Coating: Execution requirements for painting specified by this section.

1.4 REFERENCES

A. American Society of Mechanical Engineers:

1. ASME A13.1 - Scheme for the Identification of Piping Systems.

1.5 SUBMITTALS

A. Division 1 - Submittal Procedures: Submittal procedures.

B. Product Data: Submit manufacturers catalog literature for each product required.

1.6 CLOSEOUT SUBMITTALS

A. Division 1 - Execution and Closeout Requirements: Closeout procedures.

B. Project Record Documents: Record actual locations of tagged valves; include valve tag numbers.

1.7 QUALITY ASSURANCE

A. Conform to ASME A13.1 for color scheme for identification of piping systems and accessories.

PART 2 - PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS

A. Craftmark Pipe Markers.

B. Marking Services Inc.

C. Brimar Industries, Inc.

D. Seton Identification Products.

E. Substitutions: Division 1 - Product Requirements.

2.2 TAGS

A. Laminated three-layer plastic with engraved black letters on light contrasting background color. Tag size minimum 1-1/2 inches square.

B. Metal Tags: Brass with stamped letters; tag size minimum 1-½" inches square with smooth finished edges.

2.3 STENCILS

A. Stencils: With clean cut symbols and letters of following size:

1. Up to 1-¼ inches Outside Diameter of Insulation or Pipe: ½ inch high letters and 8" inch color field.
2. 1-½ to 2 inches Outside Diameter of Insulation or Pipe: ¾ inch high letters and 8-inch color field.
3. 2-1/2 to 6 inches Outside Diameter of Insulation or Pipe: 1-¼ inches high letters and 12-inch color field.

B. Stencil Paint: Semi-gloss enamel, colors and lettering size conforming to ASME A13.1.

2.4 PIPE MARKERS

A. Color and Lettering: Conform to ASME A13.1.

B. Plastic Pipe Markers: Factory fabricated, flexible, semi-rigid plastic, preformed to fit around pipe or pipe covering. Larger sizes may have maximum sheet size with spring fastener. Minimum information indication flow direction arrow and fluid being conveyed.

C. Plastic Tape Pipe Markers: Flexible, vinyl film tape with pressure sensitive adhesive backing and printed markings.

D. Plastic Underground Pipe Markers: Bright colored continuously printed plastic ribbon tape, minimum 6 inches wide by 4 mil thick, manufactured for direct burial service.

2.5 CEILING LABELS

A. Ceiling Labels: 3/4" x 2" vinyl label, 3.0 Mil self-adhesive vinyl similar to DuraLabel Pro. Label color shall be black text on a white background

PART 3 - EXECUTION

3.1 PREPARATION

A. Degrease and clean surfaces to receive adhesive for identification materials.

B. Prepare surfaces in accordance with Division 9 for stencil painting.

3.2 INSTALLATION

A. Apply stencil painting in accordance with Division 9.

B. Install identifying devices after completion of coverings and painting.

C. Install plastic nameplates with corrosive-resistant mechanical fasteners, or adhesive.

D. Install labels with sufficient adhesive for permanent adhesion and seal with clear lacquer. For unfinished canvas covering, apply paint primer before applying labels.

E. Install tags using corrosion resistant chain. Number tags consecutively by location.

F. Install underground plastic pipe markers 6 to 8 inches below finished grade, directly above buried pipe.

G. Identify control panels and major control components outside panels with plastic nameplates.

H. Identify valves in main and branch piping with tags.

I. Identify piping, concealed or exposed, with plastic tape pipe markers or stenciled painting. Use tags on piping 3/4-inch diameter and smaller. Identify service, flow direction, and pressure. Install, in clear view and align with axis of piping. Locate identification not to exceed 20 feet on straight runs including risers and drops, adjacent to each valve and tee, at each side of penetration of structure or enclosure, and at each obstruction.

END OF SECTION

PLUMBING INSULATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Asbestos, lead, and other hazardous materials are present in the building and may impact the work of all trades. Regulated air contaminates, including asbestos and lead, are also present in settled and concealed dust in and on architectural, structural, mechanical, and electrical components or systems throughout the building. All trades shall coordinate with other trades and conduct their work to prevent worker exposure or site contamination. Refer to Specification Section 02 26 00, hazardous materials survey report and Section 01 35 45, airborne contaminant control for specific information concerning disturbing, removing, and disposing of these materials and the installation of new materials or components. This notification is provided in accordance with EPA and OSHA requirements.

B. Notification of Child Occupied Facility: Portions of this building are classified as a Child Occupied Facility in accordance with 40 CFR 745 and lead-based paints may be present on components to be disturbed in those areas. Personnel performing work in these areas must comply with the requirements of 40 CFR 745, including training, work practices and cleaning of the work area. Refer to Specification Divisions 0, 1 and 2 for specific information concerning disturbing, removing and disposing of lead materials and the installation of new materials or components. This notification is provided in accordance with EPA and OSHA requirements.

1.2 SUMMARY

A. Piping insulation, jackets, and accessories.

B. Plumbing equipment, insulation, jackets, and accessories.

1.3 RELATED WORK

A. Division 7 - Firestopping: Product requirements for firestopping for placement by this section.

B. Division 9 - Painting and Coating: Execution requirements for painting insulation jackets and covering specified by this section.

C. Section 22 05 00 - Common Work Results for Plumbing.

D. Section 22 05 29 - Hangers and Supports for Plumbing Piping and Equipment.

E. Section 22 05 53 - Identification for Plumbing Piping and Equipment.

F. Section 22 19 00 - Plumbing Specialties.

1.4 REFERENCES

A. ASTM International:

1. ASTM A240 - Standard Specification for Chromium and Chromium-Nickel Stainless Steel Plate, Sheet, and Strip for Pressure Vessels and for General Applications.
2. ASTM A666 - Standard Specification for Annealed or Cold-Worked Austenitic Stainless-Steel Sheet, Strip, Plate, and Flat Bar.
3. ASTM B209 - Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate.

4. ASTM C450 - Standard Practice for Fabrication of Thermal Insulating Fitting Covers for NPS Piping, and Vessel Lagging.
5. ASTM C533 - Standard Specification for Calcium Silicate Block and Pipe Thermal Insulation.
6. ASTM C547 - Standard Specification for Mineral Fiber Pipe Insulation.
7. ASTM C585 - Standard Practice for Inner and Outer Diameters of Rigid Thermal Insulation for Nominal Sizes of Pipe and Tubing (NPS System).
8. ASTM C1136 - Standard Specification for Flexible, Low Permeance Vapor Retarders for Thermal Insulation.
9. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials.
10. ASTM E96 - Standard Test Methods for Water Vapor Transmission of Materials.

B. National Fire Protection Association:

1. NFPA 255 – Standard Method of Test of Surface Burning Characteristics

C. Underwriters Laboratories Inc:

1. UL 723 – Test for Surface Burning Characteristic of Building Materials

1.5 SUBMITTALS

A. Division 1 - Submittal Procedures: Submittal procedures.

B. Product Data: Submit product description, thermal characteristics and list of materials and thickness for each service, and location.

C. Manufacturer's Installation Instructions: Submit manufacturers published literature indicating proper installation procedures.

1.6 QUALITY ASSURANCE

A. Test pipe insulation for maximum flame spread index of 25 and maximum smoke developed index of not exceeding 50 in accordance with ASTM E84 and UL 723.

B. Pipe insulation manufactured in accordance with ASTM C585 for inner and outer diameters.

C. Factory fabricated fitting covers manufactured in accordance with ASTM C450.

1.7 QUALIFICATIONS

A. Manufacturer: Company specializing in manufacturing products specified in this section with minimum three years’ experience.

B. Applicator: Company specializing in performing Work of this section with minimum three years’ experience.

1.8 DELIVERY, STORAGE, AND HANDLING

A. Division 1 - Product Requirements: Requirements for transporting, handling, storing, and protecting products.

B. Accept materials on site in original factory packaging, labeled with manufacturer's identification, including product density and thickness.

C. Protect insulation from weather and construction traffic, dirt, water, chemical, and damage, by storing in original wrapping.

1.9 ENVIRONMENTAL REQUIREMENTS

A. Division 1 - Product Requirements: Environmental conditions affecting products on site.

B. Install insulation only when ambient temperature and humidity conditions are within range recommended by manufacturer.

C. Maintain temperature before, during, and after installation for minimum period of 24 hours.

1.10 FIELD MEASUREMENTS

A. Verify field measurements prior to fabrication.

1.11 WARRANTY

A. Division 1 - Execution and Closeout Requirements: Product warranties and product bonds.

PART 2 - PRODUCTS

2.1 MANUFACTURER

A. Certain-Teed.

B. Johns Manville.

C. Knauf.

D. Owens-Corning.

E. Substitutions: Division 1 - Product Requirements.

2.2 PIPE INSULATION

A. TYPE P-1: ASTM C547, molded glass fiber pipe insulation:

1. Thermal Conductivity: 0.23 at 75 degrees F.
2. Operating Temperature Range: 0 to 850 degrees F.
3. Vapor Barrier Jacket: ASTM C1136, Type I, factory applied reinforced foil kraft with self-sealing adhesive joints.
4. Jacket Temperature Limit: minus 20 to 150 degrees F.
5. Johns Manville - Microlok or approved equal.

2.3 PIPE INSULATION JACKETS

A. Vapor Retarder Jacket:

1. Vapor Barrier Jackets: Kraft reinforced foil vapor barrier with self-sealing adhesive joints.

B. PVC Jackets and solvent welding adhesive:

1. One-piece, pre-molded type, Johns Manville "Zeston 2000", fitting covers and jacketing material. Johns Manville "Perma-Weld" solvent welding adhesive.

C. Aluminum Pipe Jacket:

1. ASTM B209.
2. Thickness: 0.016-inch-thick sheet.
3. Finish: Corrugated or Textured.
4. Joining: Longitudinal slip joints and 2-inch laps.

D. Stainless Steel Pipe Jacket:

1. ASTM A240 OR ASTM A666 Type 304 stainless steel.
2. Thickness: 0.010 inch thick.
3. Finish: Corrugated.

2.4 PIPE INSULATION ACCESSORIES

A. Adhesive: Waterproof and Fire-retardant. Compatible with insulation.

B. Canvas Lagging Adhesive: Fire resistive to NFPA 255.

C. Impale Anchors: Galvanized steel, 12-gauge, self-adhesive pad.

D. Joint Tape: Glass fiber cloth, open mesh.

E. FSK Joint Tape; ASTM C1136 Foil-Scrim-Kraft (FSK) lamination coated with solvent acrylic pressure sensitive adhesive; capable of adhering to fibrous and sheet metal surfaces; tri-directionally reinforced 2x3 squares per inch fiberglass scrim; 9.5 mils thick, -40 to 240º F service temperatures; Venture Tape "1525CW" or approved equal.

F. Tie Wire: Annealed steel, 16 gauge.

G. Insulated pipe supports: Calcium silicate with galvanized steel jacket (min. 24 gauge); ASTM C533; rigid white; 'k' value of 0.37 at 100º F, rated to 1,200º F; Thermal Pipe Shields "T-1000 Calsil" or equal.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Division 1 - Administrative Requirements: Coordination and project conditions.

B. Verify piping and equipment has been tested before applying insulation materials.

C. Verify surfaces are clean and dry, with foreign material removed.

3.2 INSTALLATION - PIPING SYSTEMS

A. Install materials in accordance with manufacturer's recommendations, building codes and industry standards.

B. Piping Exposed to View in Finished Spaces: Locate insulation and cover seams in least visible locations.

C. Continue insulation through penetrations of building assemblies or portions of assemblies having fire resistance rating of one hour or less. Provide intumescent firestopping when continuing insulation through assembly. Finish at supports, protrusions, and interruptions. Refer to Division 07 for penetrations of assemblies with fire resistance rating greater than one hour.

D. Piping Systems Conveying Fluids Below Ambient Temperature:

1. Insulate entire system including fittings, valves, unions, flanges, strainers, flexible connections, and expansion joints.
2. Furnish factory-applied or field-applied vapor retarder jackets. Secure factory-applied jackets with pressure sensitive adhesive self-sealing longitudinal laps and butt strips. Secure field-applied jackets with outward clinch expanding staples and seal staple penetrations with vapor retarder mastic.
3. Insulate fittings, joints, and valves with molded insulation of like material and thickness as adjacent pipe. Finish with glass cloth and vapor retarder adhesive or PVC fitting covers.

E. Inserts and Shields:

1. Piping 1-1/2 inches Diameter and Larger: Install insert between support shield and piping and under finish jacket.
2. Insert Configuration: Minimum 10” long for 2-1/2” and smaller. 12” long for3” to 6” pipe.

F. Jackets, Indoor, Concealed Applications: Insulated pipes shall have vapor barrier jackets, factory applied. Vapor barrier PVC fittings may also be used provided joints are sealed with solvent welding adhesive approved by the jacket manufacturer.

G. For pipe exposed in mechanical equipment rooms or in finished spaces below 10 feet above finished floor, finish with PVC jacket and fitting covers or metal jacket.

H. For exterior applications, provide weather protection jacket or coating. Insulated pipe, fittings, joints, and valves shall be covered with PVC or metal jacket. Jacket seams shall be located on bottom side of horizontal piping.

3.3 SCHEDULES

A. Water Supply Services Piping Insulation Schedule:

PIPING SYSTEM	INSULATION TYPE	PIPE SIZE	INSULATION THICKNESS (Inches)
Piping Exposed to Freezing	P-1	All Sizes	2.0

B. Drainage Services Piping Insulation Schedule:

PIPING SYSTEM	INSULATION TYPE	PIPE SIZE	INSULATION THICKNESS (Inches)
Rain Leaders	P-1	All Sizes	1.0
Roof Drain Sumps	P-1	All Sizes	2.0
Vent Through Roof	P-1	All Sizes	1.0

Piping Exposed to Freezing	P-1	All Sizes	2.0

END OF SECTION

PLUMBING PIPING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Asbestos, lead, and other hazardous materials are present in the building and may impact the work of all trades. Regulated air contaminates, including asbestos and lead, are also present in settled and concealed dust in and on architectural, structural, mechanical, and electrical components or systems throughout the building. All trades shall coordinate with other trades and conduct their work to prevent worker exposure or site contamination. Refer to Specification Section 02 26 00, hazardous materials survey report and Section 01 35 45, airborne contaminant control for specific information concerning disturbing, removing, and disposing of these materials and the installation of new materials or components. This notification is provided in accordance with EPA and OSHA requirements.

B. Notification of Child Occupied Facility: Portions of this building are classified as a Child Occupied Facility in accordance with 40 CFR 745 and lead-based paints may be present on components to be disturbed in those areas. Personnel performing work in these areas must comply with the requirements of 40 CFR 745, including training, work practices and cleaning of the work area. Refer to Specification Divisions 0, 1 and 2 for specific information concerning disturbing, removing and disposing of lead materials and the installation of new materials or components. This notification is provided in accordance with EPA and OSHA requirements.

1.2 SUMMARY

A. Section Includes:

1. Pipe and pipe fittings.
2. Sanitary sewer piping system.
3. Storm water piping system.
4. Valves.

1.3 RELATED WORK

A. Section 22 05 00 – Common Work Results for Plumbing.

B. Section 22 05 29 – Hangers and Supports for Plumbing Piping and Equipment.

C. Section 22 05 53 – Identification for Plumbing Piping and Equipment.

D. Section 22 07 00 - Plumbing Insulation.

E. Section 22 19 00 - Plumbing Specialties.

1.4 SUBMITTALS

A. Submit product data under provisions of Division 1.

B. Product Data:

1. Include data on pipe materials, pipe fittings, valves, and accessories.
2. Valves: Submit manufacturers catalog information with valve data and ratings for each service.

1.5 QUALITY ASSURANCE

A. Perform Work in accordance with State of Alaska standard and as amended by the local Authority Having Jurisdiction.

B. Valves: Manufacturer's name and pressure rating marked on valve body.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Deliver products to site under provisions of Division 1.

B. Store and protect products under provisions of Division 1.

C. Deliver and store valves in shipping containers with labeling in place.

PART 2 - PRODUCTS

2.1 SANITARY SEWER PIPING, ABOVE GRADE

A. Cast Iron Pipe: CISPI 301, hubless, service weight, with neoprene gaskets and stainless-steel clamps.

2.2 STORM WATER PIPING, BURIED WITHIN 5 FEET OF BUILDING

A. Cast Iron Pipe: CISPI 301, hubless, service weight. Fittings: Cast iron. Joints: Neoprene gaskets and stainless-steel clamp-and-shield assemblies.

2.3 STORM WATER PIPING, ABOVE GRADE

A. Cast Iron Pipe: CISPI 301, hubless, service weight. Fittings: Cast iron. Joints: Neoprene gaskets and stainless-steel clamp-and-shield assemblies.

2.4 Equipment Drains and Overflows:

1. Steel Pipe: ASTM A53, Grade B, Schedule 40 black steel, malleable iron or forged steel fittings, threaded or welded joints.
2. Copper Tubing: ASTM B88, Type L, drawn, cast brass, wrought copper fittings, lead free solder joints.

2.5 FLANGES, UNIONS, AND COUPLINGS

A. Pipe Size 2 Inches and Under: 150 psig malleable iron unions for threaded ferrous piping; bronze unions for copper pipe, soldered joints.

B. Pipe Size Over 2 Inches: 150 psig forged steel slip-on flanges for ferrous piping; bronze flanges for copper piping; neoprene gaskets for gas service; 1/16-inch-thick preformed neoprene bonded to fiber.

C. Grooved and Shouldered Pipe End Couplings: Malleable iron housing clamps to engage and lock, designed to permit some angular deflection, contraction, and expansion; "C" shape composition sealing gasket; steel bolts, nuts, and washers; galvanized couplings for galvanized pipe.

D. Dielectric Connections: Union with galvanized or plated steel threaded end, copper solder end, water impervious isolation barrier.

2.6 VALVES

A. Manufacturers:

1. Crane.
2. Hammond Valve.
3. Milwaukee Valve Company.
4. NIBCO INC.
5. Substitutions: Division 1 - Product Requirements.

B. For drinking water service, provide valves complying with NSF 61.

2.7 GATE VALVES

A. Up to 3 inches: Not permitted.

B. Over 3 inches: ASTM A126, gray iron body with bolted bonnet, bronze trim, rising stem, hand wheel, OS&Y, solid wedge, flanged ends. Asbestos free packing and gasket.

2.8 GLOBE VALVES

A. Not permitted.

2.9 BALL VALVES

A. Up to 2 Inches: Bronze two-piece body, full port, forged brass, chrome plated ball, Teflon seats and stuffing box ring, lever handle, solder or threaded ends. Seat material to be compatible with fluid handled.

B. Over 2 Inches: Cast steel, two-piece body, full port chrome plated steel ball, Teflon seat and stuffing box seals, lever handle, flanged. Seat material to be compatible with liquid handled.

PART 3 - EXECUTION

3.1 PREPARATION

A. Ream pipe and tube ends. Remove burrs. Bevel plain end ferrous pipe.

B. Remove scale and dirt, on inside and outside piping before assembly.

C. Prepare piping connections to equipment with flanges or unions.

3.2 INSTALLATION - PIPING SYSTEMS

A. Install dielectric connections wherever joining dissimilar metals.

B. Install unions downstream of valves and at equipment or apparatus connections.

C. Route piping parallel to building structure and maintain gradient.

D. Install piping to maintain headroom. Group piping to conserve space. Group piping whenever practical at common elevations.

E. Install piping to allow for expansion and contraction without stressing pipe, joints, or connected equipment.

F. Provide clearance in hangers and from structure and other equipment for installation of insulation and access to valves and fittings.

G. Sleeve pipe passing through partitions, walls and floors.

H. Install piping to allow for expansion and contraction without stressing pipe, joints, or connected equipment.

I. Install piping system allowing clearance for installation of insulation and access to valves and fittings.

J. Provide access where valves and fittings are not exposed. Coordinate size and location of access doors.

K. Install identification on piping systems including underground piping. Refer to Section 22 05 00.

L. Protect piping systems from entry of foreign materials by temporary covers, completing sections of the work, and isolating parts of completed system.

M. Use grooved mechanical couplings and fasteners only in accessible locations.

N. Slope water piping and arrange to drain at low points.

O. Establish elevations of buried piping outside the building to ensure not less than 10 ft. of cover.

P. Where pipe support members are welded to structural building framing, scrape, brush clean, and apply one coat of zinc rich primer to welding.

Q. Prepare pipe, fittings, supports, and accessories not prefinished, ready for finish painting. Refer to Division 9.

R. Provide one plug cock wrench for every ten plug cocks sized 2 inches and smaller, minimum of one. Provide each plug cock sized 2-½ inches and larger with a wrench with set screw.

3.3 INSTALLATION - PLUMBING DRAINAGE PIPING

A. Extend cleanouts to finished floor or wall surface. Lubricate threaded cleanout plugs with mixture of graphite and linseed oil. Install clearance at cleanout for rodding of drainage system.

B. Encase exterior cleanouts in concrete flush with grade.

C. Install floor cleanouts at elevation to accommodate finished floor.

D. Install piping penetrating roofed areas to maintain integrity of roof assembly.

E. Install bell and spigot pipe with bell end upstream.

F. Establish invert elevations, slopes for drainage to ¼ inch per foot 1/8 inch per foot if 4" or over, minimum. Maintain gradients.

G. Test drainage piping in accordance with local code requirements.

3.4 INSTALLATION - VALVES

A. Install valves with stems upright or horizontal, not inverted.

B. Install ball or butterfly valves for shut-off and to isolate equipment, part of systems, or vertical risers.

C. Install ball or butterfly valves for throttling, bypass, or manual flow control services.

3.5 TESTING

A. Test all water piping hydrostatically at 100 psig or 150 percent of working pressure, whichever is greater, for a period of 4 hours. Observe piping during this period and repair all leaks.

B. Air Test:

1. In general, air testing is not acceptable except for sewage or water piping when water tests may freeze pipes.

END OF SECTION

PLUMBING SPECIALTIES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Asbestos, lead, and other hazardous materials are present in the building and may impact the work of all trades. Regulated air contaminates, including asbestos and lead, are also present in settled and concealed dust in and on architectural, structural, mechanical, and electrical components or systems throughout the building. All trades shall coordinate with other trades and conduct their work to prevent worker exposure or site contamination. Refer to Specification Section 02 26 00, hazardous materials survey report and Section 01 35 45, airborne contaminant control for specific information concerning disturbing, removing, and disposing of these materials and the installation of new materials or components. This notification is provided in accordance with EPA and OSHA requirements.

B. Notification of Child Occupied Facility: Portions of this building are classified as a Child Occupied Facility in accordance with 40 CFR 745 and lead-based paints may be present on components to be disturbed in those areas. Personnel performing work in these areas must comply with the requirements of 40 CFR 745, including training, work practices and cleaning of the work area. Refer to Specification Divisions 0, 1 and 2 for specific information concerning disturbing, removing and disposing of lead materials and the installation of new materials or components. This notification is provided in accordance with EPA and OSHA requirements.

1.2 WORK INCLUDED

A. Roof and Overflow drains.

B. Downspout Cover.

C. Cleanouts.

1.3 RELATED WORK

A. Section 22 05 00 - Common Work Results for Plumbing.

B. Section 22 05 29 - Hangers and Supports for Plumbing Piping and Equipment.

C. Section 22 05 53 - Identification for Plumbing Piping and Equipment.

D. Section 22 10 00 - Plumbing Piping.

1.4 REFERENCES

A. ANSI A112.21.2 - Roof Drains.

B. USC - University of Southern California: Foundation for Cross-connection Control and Hydraulic Research.

1.5 QUALITY ASSURANCE

A. Manufacturer: For each product specified, provide components by same manufacturer throughout.

1.6 SUBMITTALS

A. Submit product data under provisions of Division 1.

B. Include component sizes, rough-in requirements, service sizes, and finishes.

C. Submit on the following items:

1. Roof Drains.
2. Overflow Drains.
3. Cleanouts

1.7 OPERATION AND MAINTENANCE DATA

A. Provide manufacturer's parts list and maintenance information on specialties.

PART 2 - PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS – ROOF DRAINS AND OVERFLOW DRAINS AND ACCESSORIES

A. Zurn.

B. Jay R. Smith.

C. Josam.

D. Watts.

E. Substitutions: Under Division 1 - Product Requirements.

2.2 ROOF DRAINS (RD-1/RD-2 and ORD-1/ORD-2)

A. Roof Drains: ANSI A112.21.2; lacquered cast iron body with sump, removable cast iron dome strainer, membrane flange and membrane clamp with integral gravel stop, with adjustable underdeck clamp, roof sump receiver, waterproofing flange, leveling frame, adjustable extension sleeve for insulation. Size per plans.

B. Roof Overflow Drains: ANSI A112.21.2; lacquered cast iron body with sump, removable cast iron dome strainer, membrane flange and membrane clamp with integral gravel stop, with adjustable underdeck clamp, roof sump receiver, waterproofing flange, leveling frame, adjustable extension sleeve for insulation. Size per plans.

2.3 DOWNSPOUT COVER

A. Type 304 stainless steel downspout cover with securing flange and vandal proof secured perforated hinged cover.

2.4 CLEANOUTS

A. Interior Finished Wall Areas: Line type with lacquered cast iron body and round epoxy coated gasketed cover, bronze plug, and round stainless-steel access cover secured with machine screw; Model 4422 manufactured by Jay R. Smith.

B. Interior Unfinished Accessible Areas: Caulked or threaded type, Provide bolted stack cleanouts on vertical rainwater leaders.

PART 3 - EXECUTION

3.1 PREPARATION

A. Coordinate cutting and forming of roof and floor construction to receive drains to required invert elevations.

3.2 INSTALLATION AND APPLICATION

A. Install specialties in accordance with manufacturer's instructions to permit intended performance.

B. Extend cleanouts to finished floor or wall surface. Lubricate threaded cleanout plugs with mixture of graphite and linseed oil. Ensure clearance at cleanout for rodding of drainage system.

END OF SECTION

COMMON WORK RESULTS FOR HVAC

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Asbestos, lead, and other hazardous materials are present in the building and may impact the work of all trades. Regulated air contaminates, including asbestos and lead, are also present in settled and concealed dust in and on architectural, structural, mechanical, and electrical components or systems throughout the building. All trades shall coordinate with other trades and conduct their work to prevent worker exposure or site contamination. Refer to Specification Section 02 26 00, hazardous materials survey report and Section 01 35 45, airborne contaminant control for specific information concerning disturbing, removing, and disposing of these materials and the installation of new materials or components. This notification is provided in accordance with EPA and OSHA requirements.

B. Notification of Child Occupied Facility: Portions of this building are classified as a Child Occupied Facility in accordance with 40 CFR 745 and lead-based paints may be present on components to be disturbed in those areas. Personnel performing work in these areas must comply with the requirements of 40 CFR 745, including training, work practices and cleaning of the work area. Refer to Specification Divisions 0, 1 and 2 for specific information concerning disturbing, removing, and disposing of lead materials and the installation of new materials or components. This notification is provided in accordance with EPA and OSHA requirements.

1.2 SCOPE

A. All provisions of the Contract including the General and Supplementary Conditions, and the General Requirements apply to this work.

1.3 WORK INCLUDED

A. The work to be included in these and all other mechanical subsections shall consist of providing, installing, adjusting, and setting into proper operation, complete and workable systems for all items shown on the drawings, described in the specifications or reasonably implied. This shall include the planning and supervision to coordinate the work with other crafts and to maintain a proper time schedule for delivery of materials and installation of the work.

B. Division 1 of the specifications is to be specifically included as well as all related drawings.

1.4 RELATED WORK

A. Related Work Specified Elsewhere:

1. Plumbing Specifications: Division 22
2. Electrical Specifications: Division 26
3. Motors and Connections: Division 26
4. Starters and Disconnects: Division 26

B. Unless otherwise indicated on the electrical drawings or the electrical schedules, provide all mechanical equipment motors, motor starters, thermal overload switches, control relays, time clocks, thermostats, motor operated valves, float controls, damper motors, electric-pneumatic and pneumatic electric switches, electrical components, wiring and any other miscellaneous Division

23 controls. Disconnect switches are included in the electrical work, unless specifically called out on mechanical plans.

C. Carefully coordinate all work with the electrical work shown and specified elsewhere.

1.5 REFERENCED CODES - LATEST ADOPTED EDITION

A.	NFPA 13	Installation of Sprinkler Systems
B.	NFPA 70	National Electrical Code (NEC), 2020 Edition
C.	IMC	International Mechanical Code, 2018 Edition
D.	UPC	Uniform Plumbing Code, 2018 Edition
E.	IFC	International Fire Code, 2018 Edition
F.	IFGC	International Fuel Gas Code, 2018 Edition
G.	IBC	International Building Code, 2018 Edition
H.	IECC	International Energy Conservation Code, 2018 Edition

1.6 REFERENCED STANDARDS/TESTING AGENCIES

A.	UL	Underwriters Laboratories
B.	AMCA	Air Movement and Control Association
C.	ANSI	American National Standards Institute
D.	ASME	American Society of Mechanical Engineers
E.	ASTM	American Society for Testing and Materials
F.	NEMA	National Electric Manufacturers Association
G.	AGA	American Gas Association
H.	ASHRAE	American Society of Heating and Refrigeration Engineers
I.	SMACNA	Sheet Metal & Air Conditioning Contractors National Association

1.7 SUBMITTALS

A. See General Conditions and the General Requirements in Division 1 regarding submittals.

B. Submit by specification section complete and all at one time; partial submittals will not be considered. Submittals shall be in electronic format. The data shall be arranged and indexed under basic categories. Electronic submittal PDF shall be bookmarked and identify references to sections of specifications.

C. Catalog sheets shall be complete and the item or model to be used shall be clearly marked, and identified as to which item in the specifications or on the drawings is being submitted and with drawing fixture number where applicable.

D. *Only submit* on items specifically required by each specification section. If a submittal has not been requested, it will not be reviewed.

E. Submit shop drawings indicating seismic restraint to the Municipality Plan Review for approval prior to installation of equipment that requires restraint for wind and seismic loads by the IBC. Submittals shall be prepared by an engineer employed by the manufacturer of the seismic restraint products used for the project. The seismic design shall be based upon the seismic hazard level and shall take into account the maximum point loading possible with the structural design shown on the plan set for this project.

1.8 QUALITY ASSURANCE

A. Perform Work in accordance with State of Alaska standard and as amended by the local Authority Having Jurisdiction.

1.9 PROJECT RECORD DRAWINGS

A. In addition to other requirements of Division 1, mark up a clean set of drawings as the work progresses to show the dimensioned location and routing of all mechanical work which will become permanently concealed. Show routing of work in concealed blind spaces within the building. Show exact dimensions of buried piping off of columns or exterior walls.

B. Show the location of all valves and their appropriate tag identification.

C. Maintain record documents at job site in a clean, dry and legible condition. Keep record documents available for inspection by the Project Manager.

D. At completion of the project, deliver these drawings to the owner and obtain a written receipt.

1.10 HANDLING

A. See General Conditions and the General Requirements in Division 1 regarding material handling.

B. Deliver packaged materials to job site in unbroken packages with manufacturer's label, and store to facilitate inspection and installation sequence. All items must be labeled and identified as to make, size and quality.

1.11 SUBSTITUTIONS

A. See General Conditions and the General Requirements in Division 1 for substitution request procedures.

B. In accordance with the General Conditions and the General Requirements in Division 1, Substitution and Product Options, all substitute items must fit in the available space, and be of equal or better quality including efficiency performance, size, and weight, and must be compatible with existing equipment. The owner shall be the final authority regarding acceptability of substitutes.

1.12 DIMENSIONS

A. Before ordering any material or doing any work, the Contractor shall verify all dimensions, including elevations, and shall be responsible for the correctness of the same. No extra charge or compensation will be allowed on account of differences between actual dimensions and measurements indicated on the drawings.

B. Any differences which may be found shall be submitted to the Anchorage School District Project Manager for consideration before proceeding with the work.

1.13 MANUFACTURER'S DIRECTIONS

A. All manufactured articles shall be applied, installed and handled as recommended by the manufacturer, unless specifically called out otherwise in the plans. Advise the Anchorage School District Project Manager of any such conflicts before installation.

1.14 PERMITS, FEES, ETC

1.15 The Contractor under each section of these specifications shall arrange for a permit from the local authority. Permit/inspection fees or other fees and charges required by ordinance, law, codes and these specifications will be paid by ASD.

1.16 TESTING

A. The Contractor under each section shall, at his own expenses, perform the various tests as specified and required by the owner and as required by the applicable code, the State, and local authorities. The Contractor shall furnish all fuel and materials necessary for making tests.

1.17 TERMINOLOGY

A. Whenever the words "furnish", "provide", "furnish and install", "provide and install", and/or similar phrases occur, it is the intent that the materials and equipment described be furnished, installed and connected under this Division of the Specifications, complete for operation unless specifically noted to the contrary.

B. Where a material is described in detail, listed by catalog number or otherwise called for, it shall be the Contractor's responsibility to furnish and install the material.

C. The use of the word "shall" conveys a mandatory condition to the contract.

D. "This section" refers to the section in which the statement occurs.

E. "The project" includes all work in progress during the construction period.

F. In describing the various items of equipment, in general, each item will be described singularly, even though there may be a multiplicity of identical or similar items.

G. "Accessible" is defined as clear space for a 6-foot tall, 200-pound person with a 50-pound toolbox to be able to operate, maintain, repair, or replace equipment specified for this project.

1.18 SCHEDULE OF WORK

A. The work must be expedited, and close coordination will be required in executing the work. The various trades shall perform their portion of the work at such times as directed so as to meeting

scheduled completion dates, and to avoid delaying any other trade. The owner will set up completion dates. Each contractor shall cooperate in establishing these times and locations and shall process his work so as to ensure the proper execution of it.

1.19 COOPERATION AND CLEANING UP

A. The contractor for the work under each section of the specifications shall coordinate his work with the work described in all other sections of the specifications to the end that, as a whole, the job shall be a finished one of its kind and shall carry on his work in such a manner that none of the work under any section of these specifications shall be handicapped, hindered or delayed at any time. Failure to comply with this shall not constitute grounds for any additional payments in connection with removing or modifying any part of the existing installations and/or installing any new work.

B. The Contractor shall examine the structural, architectural, mechanical, electrical, hazardous material, and all other drawings relating to the building and plan his work accordingly. He shall check and verify all dimensions at the site before installing any portion of the system. Any discrepancies in piping locations resulting from failure to do so shall be corrected expeditiously to provide proper coordination of all trades.

B. At all times during the progress of the work, the Contractor shall keep the premises clean and free of unnecessary materials and debris. The Contractor shall, on direction at any time from the owner, clear any designated areas or area of materials and debris. On completion of any portion of the work, the Contractor shall remove from the premises all tools and machinery and all debris occasioned by the work, leaving the premises free of all obstructions and hindrances.

1.20 WARRANTY

A. Unless a longer guarantee is hereinafter called for, all work, materials and equipment items shall be guaranteed for a period of one year after acceptance by the Owner. All defects in labor and materials occurring during this period, as determined by the Anchorage School District Project Manager, shall be repaired and/or replaced to the complete satisfaction of the Anchorage School District Project Manager. The warranty shall be in accordance with Division 01.

1.21 COMPLETION REQUIREMENTS

A. In accordance with the General Conditions and the General Requirements in Division 01, Project Closeout; before acceptance and final payment, the Contractor shall furnish:

1. Accurate project record drawings, shown in red ink on prints, showing all changes from the original plans made during installation of the work.
2. Contractor’s one year warranty.
3. All manufacturers’ guarantees.
4. Test and balance reports.
5. Operation and maintenance manuals.

1.22 INSPECTION OF SITE - REMODEL PROJECTS

A. The accompanying plans do not indicate completely the existing mechanical installations. The bidders for the work under these sections of the specifications shall inspect the existing installations and thoroughly acquaint themselves with conditions to be met and the work to be accomplished in removing and modifying the existing work, and in installing the new work in the present building and underground serving to and from that structure. Failure to comply with this

shall not constitute grounds for any additional payments in connection with removing or modifying any part of the existing installations and/or installing any new work.

1.23 RELOCATION OF EXISTING INSTALLATIONS

A. There are portions of the existing fire protection, plumbing, heating, ventilation, and electrical systems, which shall remain in use to serve the finished building in conjunction with the indicated new installations. By actual examination at the site, each bidder shall determine those portions of the remaining present installations, which must be relocated to avoid interference with the installations of new work of his particular trade and that of all other trades. All such existing installations, which interfere with new installations, shall be relocated by the Contractor.

1.24 SALVAGE MATERIALS

A. The Contractor shall remove existing equipment and other items associated with the mechanical systems where no longer required for the project. Where such items are exposed to view or uncovered by any cutting or removal of general construction and has no continuing function (as determined by the Architect/Engineer), they shall be removed.

B. All items or materials removed from the project shall be made available for the Owner's inspection. The Owner retains the option to claim any item or material. The Contractor shall deliver any claimed item or material in good condition to the place designated by the Owner. All items not claimed become the property of the Contractor and shall be removed from the site by the Contractor.

PART 2 - PRODUCTS

2.1 MATERIALS

A. All equipment shall be regularly cataloged items of the manufacturer and shall be supplied as a complete unit in accordance with the manufacturer's standard specifications along with any optional items required for proper installation unless otherwise noted. Maintain manufacturer's identification, model number, etc. on all equipment at all times.

B. Where more than one of an item is to be provided, all of the items shall be identical manufacture, make, model, color, etc.

2.2 RESTRICTED MATERIALS

A. No materials containing asbestos in any form shall be allowed. Where materials or equipment provided by this Contractor are found to contain asbestos, such items shall be removed and replaced with non-asbestos items. Entire cost of asbestos removal and disposal and cost of installing new items shall be the responsibility of the Contractor for those asbestos containing items installed by the Contractor.

B. No solder or flux containing lead shall be used on this project.

C. Any pipe or plumbing fitting or fixture, any solder, or any flux utilized on this project shall be “lead free” in accordance with the Safe Drinking Water Act, Section 1417. “Lead free” materials utilized in domestic water system shall not contain more than 0.2 percent lead when used with respect to solder and flux; and not more than a weighted average of 0.25 percent lead when used with respect to the wetted surfaces of pipes, pipe fittings, plumbing fittings, and fixtures. All materials

utilized in domestic water system shall be certified by an ANSI accredited organization to conform to ANSI/NSF Standard 61."

D. Where materials or equipment provided by this Contractor are found to contain restricted materials, such items shall be removed and replaced with non-restricted materials items. Entire cost of restricted materials removal and disposal and cost of installing new items shall be the responsibility of the Contractor for those restricted materials containing items installed by the Contractor.

2.3 MATERIALS

A. All equipment shall be regularly cataloged items of the manufacturer and shall be supplied as a complete unit in accordance with the manufacturer's standard specifications along with any optional items required for proper installation unless otherwise noted. Maintain manufacturer's identification, model number, etc. on all equipment at all times.

B. Where more than one of an item is to be provided, all of the items shall be identical manufacture, make, model, color, etc.

2.4 ELECTRICAL MOTORS

A. Motors: Furnish electric motors designed for the specific application and duty applied, and to deliver rated horsepower without exceeding temperature ratings when operated on power systems with a combined variation in voltage and frequency not more than + 10% of rated voltage. Motors for pumps and fans shall be selected to be non-overloading.

B. Verify from the drawings and specifications the available electrical supply characteristics and furnish equipment that will perform satisfactorily under the conditions shown and specified.

C. Size motors for 1.15 service factor.

D. Fractional horsepower motors to have self-resetting thermal overload switch.

E. Provide Premium Efficiency, motors for all three phase motors one horsepower and larger. Standard efficiency motors will not be acceptable.

PART 3 - EXECUTION

3.1 DRAWINGS

A. The mechanical drawings are generally diagrammatic. Complete details of the building, which affect the mechanical installation, may not be shown. For additional details, see Architectural and Electrical Drawings. Coordinate work under this section with that of all related trades.

3.2 INSTALLATION

A. All work shall comply with the latest adopted applicable codes and ordinances including, but not limited to, the NFPA, IMC, IFC, UPC, IFGC and IBC Standards; all local and state amendments to all codes and standards.

B. Obtain and pay for all inspection fees, connection charges and permits as a part of the Contract.

C. Compliance with codes and ordinances shall be at the Contractor's expense.

3.3 MEASUREMENTS

A. Verify all measurements on the job site.

B. Locate all equipment and fixtures on the centers of walls, openings, spaces, etc., unless specified otherwise.

C. Check all piping, ducts, etc. to clear openings.

D. Rough-in dimensions shall be per manufacturer's recommendations and in compliance with ADA and ANSI 117.1 Guidelines.

3.4 OPERATING INSTRUCTIONS

A. Before the facility is turned over to the Owner, instruct the Owner or Owner's personnel in the operation, care and maintenance of all systems and equipment under the jurisdiction of the Mechanical Division. These instructions shall also be included in a written summary in the Operating Maintenance Manuals.

B. The Operation and Maintenance Manuals shall be utilized for the basis of the instruction. Provide a minimum of eight hours of onsite instruction to the owner designated personnel.

C. When required by individual specifications sections provide additional training on plumbing systems and equipment.

3.5 OPERATION AND MAINTENANCE MANUALS

A. Submit maintenance manuals to the Engineer covering all equipment, fixtures, devices, etc. installed by the Contractor. Submit prior to substantial completion.

B. The operation and maintenance manuals shall be submitted by specification section complete and all at one time; partial operations and maintenance manual submittals will not be considered. The Operation and maintenance manuals shall be provided for review in electronic PDF Format. The data in the electronic file shall be arranged and indexed under basic categories. An index shall be included with bookmarks and identifying tabs between sections and references to sections of specifications. Final operation and maintenance manuals shall be bound in a loose leaf three ring binder with reinforced holes in the sheets so as to prevent lost pages. The manual shall contain, but not limited to, the following types of information:

1. Cover sheet with name, address, telephone number of Contractor, General Contractor and major equipment suppliers.
2. Catalog cuts of all equipment, fixtures, etc. installed (Marked to identify the specific items used).
3. Manufacturer's maintenance and overhaul instruction booklets including exploded views.
4. Identification numbers of all parts and nearest sources for obtaining parts and services.
5. A copy of valve schedule and reduced scale drawings showing valve locations.
6. Written summary of instructions to Owner.
7. Test and balance final report.
8. All manufacturers’ warranties and guarantees.

C. A periodic maintenance form that includes all of the equipment shall be provided with the maintenance manual. The form shall list each piece of equipment and how often maintenance is required (daily, weekly, monthly, annually). Opposite each task shall be squares for check-off for a full year (initials) to verify that the tasks are being done.

3.6 SYSTEM ADJUSTING

A. Each part of each system shall be adjusted and readjusted as necessary to ensure proper functioning of all controls, proper air distribution, elimination of drafts, and noise and vibration.

B. Balance air systems for volume quantities shown and as required ensuring even temperature and the elimination of drafts. Balancing shall be done by a qualified firm acceptable to the Engineer. Provide balancing log to the Engineer before substantial inspection.

3.7 CUTTING, FITTING, PATCHING AND FINISH

A. Arrange and pay for all cutting, fitting, repairing, patching and finishing of work by other trades where it is necessary to disturb such work to permit installation of mechanical work. Perform work only with craftsmen skilled in their respective trades.

B. Avoid cutting, insofar as possible, by setting sleeves, frames, etc. and by requesting openings in advance. Assist other trades in securing correct location and placement of rough-frames, sleeves, openings, etc. for piping.

C. Cut all holes neatly and as small as possible to admit work. Include cutting where sleeves or openings have been omitted. Perform cutting in a manner so as not to weaken walls, partitions or floors. Drill holes required to be cut in floors without breaking out around holes.

3.8 PAINTING

A. Perform all of the following painting in accordance with provisions of Division 9 with colors as selected by the Architect. Provide the following items as a part of mechanical work:

1. Factory applied prime and finish coats on mechanical equipment.
2. Factory applied prime coat on access doors.
3. Pipe identification where specified.

B. If factory finish on any equipment furnished is damaged in shipment or during construction, refinish to equal original factory finish.

3.9 INSTALLATION OF EQUIPMENT

A. Unless otherwise indicated, mount all equipment and install it in accordance with manufacturer's recommendations and approved submittals.

B. Maintain manufacturer’s recommended minimum clearances for access and maintenance.

C. Where equipment is to be anchored to structure, furnish and locate necessary anchoring and vibration isolation devices.

D. Furnish all structural steel, such as angles, channels, beams, etc. required to support all piping, equipment and accessories installed under this Division. Use structural supports suitable for equipment specified or as indicated. In all cases, support design will be based upon data contained in the manufacturer’s catalog.

E. Openings: Arrange for necessary openings in buildings to allow for admittance and reasonable maintenance or replacement of all apparatus furnished under this Contract.

F. Access Doors: Provide as necessary for reasonable maintenance of all equipment valves, damper actuators, fire dampers, coils, and controls, etc.

END OF SECTION

MECHANICAL DEMOLITION, RELOCATION AND ALTERATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Asbestos, lead, and other hazardous materials are present in the building and may impact the work of all trades. Regulated air contaminates, including asbestos and lead, are also present in settled and concealed dust in and on architectural, structural, mechanical, and electrical components or systems throughout the building. All trades shall coordinate with other trades and conduct their work to prevent worker exposure or site contamination. Refer to Specification Section 02 26 00, hazardous materials survey report and Section 01 35 45, airborne contaminant control for specific information concerning disturbing, removing, and disposing of these materials and the installation of new materials or components. This notification is provided in accordance with EPA and OSHA requirements.

B. Notification of Child Occupied Facility: Portions of this building are classified as a Child Occupied Facility in accordance with 40 CFR 745 and lead-based paints may be present on components to be disturbed in those areas. Personnel performing work in these areas must comply with the requirements of 40 CFR 745, including training, work practices and cleaning of the work area. Refer to Specification Divisions 0, 1 and 2 for specific information concerning disturbing, removing and disposing of lead materials and the installation of new materials or components. This notification is provided in accordance with EPA and OSHA requirements.

1.2 SUMMARY

A. Section Includes:

1. Demolition, removal, relocation, rerouting and reconnection of existing non-hazardous plumbing and mechanical facilities, as indicated on Drawings, to accomplish alteration, restoration and to accommodate new construction, and as follows:

    a. HVAC Equipment.
    b. Piping and duct.
    c. Piping specialties.
    d. Valves.
    e. Pipe hangers and piping supports.
    f. Pipe, valve, and equipment identification.

B. Related Sections:

1. Section 02 41 19 - Selective Demolition.
2. Section 23 05 00 – Common Work Results for HVAC.
3. Division 26 – Selective Electrical Demolition.

1.3 REFERENCES

A. American National Standards Institute:

1. ANSI 10.6 - Safety and Health Program Requirements for Demolition Operations.

B. American Society of Heating, Refrigerating and Air-Conditioning Engineers.

1. ASHRAE 15 - Safety Standard for Refrigeration Systems.

C. International Code Council.

1. IEBC - International Existing Building Code.

D. United States Federal Law

1. 1990 CAAA - Clean Air Act Amendments of 1990.

1.4 SUBMITTALS

A. Division 1 - Submittals: Submittal requirements.

B. Welding/Burning Permit: Obtain a welding/burning permit from local Fire Official prior to start of any welding or burning in accordance with local Fire Code.

1.5 QUALITY ASSURANCE

A. Perform Work in accordance with:

1. Applicable codes.
2. IEBC.
3. Utility Company requirements.
4. Owner's insurance carrier's requirements
5. ANSI A10.6.
6. National Demolition Association's Demolition Safety Manual.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Provide materials for this work in accordance with applicable Specifications Sections in Divisions 21, 22, and 23.

B. Provide materials as required to protect building components from damage during demolition, and after demolished equipment is removed.

C. At openings of building envelope, provide covers of sufficient strength to maintain structural integrity when subjected to effects of wind, weather, and construction activity.

1. Framing, at building openings with draped membrane covers are not acceptable.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verify field measurements and arrangements are as shown on Drawings.

B. Verify that abandoned piping, ductwork, and equipment serve only abandoned facilities.

C. Demolition Drawings are based on casual field observations and existing documents. Visit site and verify existing conditions. Report discrepancies, unusable equipment, equipment needing repair, and unsafe conditions to Owner's Representative before disturbing existing installation.

D. Beginning of demolition means Contractor accepts existing conditions.

3.2 DISPOSAL OF DEMOLISHED MATERIALS

A. In accordance with Section 02 41 19 - Selective Demolition.

B. Removed equipment and materials may be salvaged or recycled by contractor if not otherwise indicated or scheduled to be salvaged for Owner's use. Sale of salvaged materials not allowed on project site.

C. Contractors may retain monies received for material with scrap value such as recycling copper pipe and tubing.

3.3 GENERAL

A. Provide demolition and alteration of mechanical facilities and systems under provisions of Division 1, this section, and as indicated on Drawings. Drawings are diagrammatic, and do not indicate each detail of work required.

B. Where existing systems and equipment must remain in service, provide temporary bypass and rerouted pipe and duct paths.

C. Review equipment to be removed with Architect/Engineer prior to commencing work.

1. Remove exposed work to its connection to permanent system that remains, or to wall or deck at which work is no longer exposed.
2. Provide cap to open end of permanent system at point at which demolition stops. Fabricate cap from same or similar materials that are suitable for continued service of permanent system. Seal cap with gaskets and sealants suitable for continued system operation.

D. Store and protect, at location designated by Architect/Engineer, demolished materials designated for salvage and reinstallation.

E. Repair adjacent construction and finishes damaged during demolition and extension work.

F. Verify extent of demolition prior to beginning work.

1. If work not intended for demolition is removed, replace improperly removed work in manner acceptable to Engineer at no additional cost.

G. Mechanical demolition to be performed by or under supervision of mechanical contractor.

H. Controls demolition to be performed by DDC contractor.

3.4 PIPE REMOVAL

A. Cut off piping square at locations indicated.

B. Where demolition ends at flanged connection, close remaining pipe end with blind flange matching piping system requirements.

C. Where demolition ends at threaded connection, close remaining pipe end with screwed cap or plug matching piping system requirements.

D. Remove pipe hangers, supports, and supplemental pipe support structures as pipe is removed.

3.5 MECHANICAL EQUIPMENT REMOVAL

A. Remove mechanical equipment indicated to be removed, including equipment's supply and return piping, refrigerant piping, condensate piping, domestic water piping, drainage piping, valves, insulation, ductwork, hangers, supports, controls, associated components, and line and low-voltage wiring, unless otherwise indicated.

B. Remove electrical Work, including wiring between equipment, and wiring to power source or point of origin. Coordinate with Electrical Contractor. Refer to Section 26 05 90.

C. Remove equipment steel or structure supports.

3.6 DUCTWORK REMOVAL

A. Disconnect ductwork to be removed at closest joint and resupport ductwork to remain.

B. Prepare remaining ductwork joints at point of disconnection to receive new ducts or blank-off panels.

C. Remove ductwork supports and miscellaneous steel with ductwork as it is demolished.

3.7 INSULATION REMOVAL

A. Removal non-asbestos insulation, together with piping, fittings, valves and equipment designated for demolition.

B. If there is doubt as to whether asbestos materials may be present on existing piping or dismantled equipment, stop removal Work affecting suspected asbestos immediately and advise Architect/Engineer of this action.

1. Owner will engage certified industrial hygiene testing service to determine whether asbestos is present
2. If asbestos is present, Owner will remove asbestos from insulated material being removed under separate contract.

C. Detection, abatement, replacement, removal and disposal of asbestos materials can only be performed under supervision and control of a qualified specialist retained by the Owner.

3.8 CONTROL WIRING AND TUBING REMOVAL

A. Disconnect and remove control wiring and tubing, including conduit, associated with equipment to be removed. Where it is not possible to remove conduit, remove wiring and tubing and cap or seal conduit in place. Cut conduit flush with walls and floors, and patch surfaces.

B. Cap pneumatic tubing to continue service for system controls not part of this work.

3.9 CLEANING AND REPAIR

A. Clean and repair materials and equipment which are affected by work under this contract, and which remain or are to be reused.

3.10 INSTALLATION

A. Install relocated materials and equipment under the provisions of othersections.

END OF SECTION

HANGERS AND SUPPORTS FOR HVAC PIPING AND EQUIPMENT

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Asbestos, lead, and other hazardous materials are present in the building and may impact the work of all trades. Regulated air contaminates, including asbestos and lead, are also present in settled and concealed dust in and on architectural, structural, mechanical, and electrical components or systems throughout the building. All trades shall coordinate with other trades and conduct their work to prevent worker exposure or site contamination. Refer to Specification Section 02 26 00, hazardous materials survey report and Section 01 35 45, airborne contaminant control for specific information concerning disturbing, removing, and disposing of these materials and the installation of new materials or components. This notification is provided in accordance with EPA and OSHA requirements.

B. Notification of Child Occupied Facility: Portions of this building are classified as a Child Occupied Facility in accordance with 40 CFR 745 and lead-based paints may be present on components to be disturbed in those areas. Personnel performing work in these areas must comply with the requirements of 40 CFR 745, including training, work practices and cleaning of the work area. Refer to Specification Divisions 0, 1 and 2 for specific information concerning disturbing, removing and disposing of lead materials and the installation of new materials or components. This notification is provided in accordance with EPA and OSHA requirements.

1.2 SUMMARY

A. Section Includes:

1. Pipe hangers and supports.
2. Hanger rods.
3. Equipment bases and supports.
4. Flashing and sealing equipment and pipe stacks
5. Sleeves and seals
6. Duct roof supports

B. Products furnished but installed under other sections.

1. Furnish hangers and supports for placement of formwork.
2. Placement of equipment roof support curbs.

1.3 RELATED SECTIONS

A. Division 7 – Fire Stopping: Product requirements for joint seals for piping and duct penetrations of fire rated assemblies.

B. Division 9 - Painting and Coating: Product and execution requirements for painting specified by this section.

C. Section 23 05 53 – Identification for HVAC Piping, Ductwork, and equipment.

D. Section 23 07 00 - HVAC Insulation.

E. Section 23 31 00 – HVAC Ducts and Casing

1.4 REFERENCES

A. American Society of Mechanical Engineers:

1. ASME B31.1 - Power Piping.
2. ASME B31.2 – Fuel Gas Piping
3. ASME B31.5 - Refrigeration Piping.
4. ASME B31.9 - Building Services Piping.

B. ASTM International:

1. ASTM F708 - Standard Practice for Design and Installation of Rigid Pipe Hangers.

C. International Code Council:

1. International Fuel Gas Code (IFGC)
2. International Mechanical Code (IMC)

D. Manufacturers Standardization Society of the Valve and Fittings Industry:

1. MSS SP 58 - Pipe Hangers and Supports - Materials, Design and Manufacturer.
2. MSS SP 69 - Pipe Hangers and Supports - Selection and Application.
3. MSS SP 89 - Pipe Hangers and Supports - Fabrication and Installation Practices.

1.5 REGULATORY REQUIREMENTS

A. Conform to applicable code for support of ductwork and hydronic piping

1.6 SUBMITTALS

A. Division 1 - Submittal Procedures: Submittal procedures.

B. Product Data: Submit manufacturers catalog data including load capacity.

C. Manufacturer's Installation Instructions: Submit special procedures and assembly of components.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Division 1 - Product Requirements: Requirements for transporting, handling, storing, and protecting products.

B. Protect from weather and construction traffic, dirt, water, chemical, and damage, by storing in original packaging.

1.8 WARRANTY

A. Division 1 - Execution and Closeout Requirements: Product warranties and product bonds.

PART 2 - PRODUCTS

2.1 PIPE HANGERS AND SUPPORTS

A. Manufacturers:

1. Michigan Hanger Company.
2. B-Line Systems, Inc.
3. Substitutions: Division 1 - Product Requirements.

B. Hydronic Piping:

1. Conform to MSS SP58.
2. Hangers for Pipe Sizes 1/2 to 1-1/2 Inch: Malleable iron, adjustable swivel, split ring for steel pipe, copper swivel for copper pipe.
3. Hangers for Hot Pipe Sizes 2 to 4 Inches and Cold Pipe Sizes 2 Inches and Larger: Carbon steel, adjustable, clevis.
4. Multiple or Trapeze Hangers: Steel channels or strut with hanger rods.
5. Wall Support for Pipe Sizes to 3 Inches: Strut triangular bracket with pipe clamp and cushion insulator.
6. Wall Support for Pipe Sizes 4 Inches and Over: Welded steel bracket and wrought steel clamp.
7. Vertical Support: Steel riser clamp.
8. Floor Support for Pipe Sizes to 4 Inches and All Cold Pipe Sizes: Cast iron adjustable pipe saddle, locknut nipple, floor flange or steel support.
9. Copper Pipe Support: Carbon steel ring, adjustable, copper plated with felt isolation pad or all copper ring or swivel.
10. Design hangers to allow installation without disengagement of supported pipe.
11. Copper Plating: All hanger elements in metal-to-metal contact with copper pipe, except hanger rings with factory-applied 1/16-inch minimum thick plastic or tape cushion strip over all contact surfaces.

2.2 ACCESSORIES

A. Hanger Rods: Mild steel threaded both ends, threaded on one end, or continuous threaded.

B. Shield for Insulated Piping 1-1/2 Inches and Smaller: 18-gauge galvanized steel shield over insulation in 180º segments, minimum 12 inches long at pipe support.

C. Shield for Insulated Piping 2 Inches and Larger: Hard block, calcium silicate inserts, 180° segment, 12 inches minimum length, block thickness same as insulation thickness, flame resistant vapor barrier covering and 18-gauge galvanized shield.

2.3 ANCHOR BOLTS

A. Anchor (Expansion) Bolts: Shall be carbon steel to ASTM A 307; nut shall conform to ASTM A194; shall be drilled-in type. Design values for shear and tension shall be not more than 80 percent of the allowable load.

2.4 INSERTS

A. Inserts: Malleable iron case of galvanized steel shell and expander plug for threaded connection with lateral adjustment, top slot for reinforcing rods, lugs for attaching to forms; size inserts to suit threaded hanger rods.

2.5 FLASHING

A. Metal Flashing: 26 gage thick galvanized steel.

B. Metal Counterflashing: 22 gage thick galvanized steel.

C. Flexible Flashing: 47 mil thick sheet butyl compatible with roofing.

D. Caps: Steel, 22 gage minimum; 16 gage at fire resistant elements.

2.6 EQUIPMENT CURBS

A. Fabricate curbs of concrete, wood or steel beam. Coordinate with architectural for all roof curbs.

2.7 SLEEVES

A. Sleeves for Pipes Through Non-fire Rated Floors: 18 gage thick galvanized steel for 4” diameter and larger. 22 gauge up to 3inch diameter.

B. Sleeves for Pipes Through Non-fire Rated Beams, Walls, Footings, and Potentially Wet Floors: Steel pipe or 18 gage thick galvanized steel for 4 inch diameter and larger, 22 gauge up to 3 inch diameter.

C. Sleeves for Pipes Through Fire Rated and Fire Resistive Floors and Walls, and Fireproofing: Prefabricated fire rated sleeves including seals, UL listed sealant.

D. Fire Stopping Insulation: Glass fiber type, non- combustible.

E. Sealant: Fire stop sealant in compliance with ASTM E814 and UL 1479. Refer to Division 7.

F. Mechanical Sleeve Seals: Modular mechanical type, consisting of interlocking synthetic rubber links shaped to continuously fill annular space between object and sleeve, connected with bolts and pressure plates causing rubber sealing elements to expand when tightened, providing watertight seal and electrical insulation.

2.8 FORMED STEEL CHANNEL

A. Strut Type Pipe Hanging System: Unistrut P-1000 series; framing members shall be No. 12 gage formed steel channels, 1-5/8 inch square, conforming to ASTM A 570 GR33, one side of channel shall have a continuous slot with inturned lips; framing nut with grooves and spring 1/2 inch size, conforming to ASTM 675 GR60; screws conforming to ASTM A 307; fittings conforming to ASTM A 575; all parts enamel painted or electrogalvanized.

2.9 NON-PENTRATING ROOFTOP SUPPORTS

A. Portable Support System: Engineered, portable system specifically designed for installation without the need for roof penetrations or flashings, and without causing damage to the roofing membrane.
   1. Design system using high density / high impact polypropylene bases with 15062-6 carbon black, anti-oxidants for UV protection, and steel framing for support is 1-5/8 inch B22TH or 1-7/8 inch BTS22TH.
   2. Custom design system to fit piping, conduits, equipment, or walkways to be installed and actual conditions of service and loading.
   3. Piping Supports: Provide suitable hangers and supports.
   4. Duct and Equipment Supports: Factory fabricated to support exact duct sizes and equipment to be installed

B. Bases: Injection molded high density / high impact polypropylene with UV-inhibitors and anti-oxidants, conforming to the following:
   1. Moisture Content: Negligible.

2. Shrinkage/Swelling Due to Moisture: Negligible.
3. Density: 55.8 lb/cu ft.
4. Insect Resistance: No known insect damage potential.
5. Chemical Resistance (oil, brake fluid, gasoline, diesel, antifreeze, battery acid, and sulfuric acid: No visual or physical change apparent.
6. Flammability: No ignition after 10 minutes, 25 kW/m, when tested in accordance with ASTM D 1929.
7. Sized as required by loading conditions.
8. Shop fabricated with inserts for square tubing or threaded rods as required.
9. Color: Integral black color as molded.
10. Bases for Mechanical Attachment: Sealant chamber around penetration point, with injection port for sealing after fastening; beveled lip for sealant bead around entire diameter.
11. Do not use bases containing carbonated plastics, press molded recycled rubber and plastics, steel, stainless steel, or any injection molded threaded receivers.

C. Steel Framing:
1. Channel Types: 1-5/8 inch B22TH or 1-7/8 inch BTS22H, as required for loading conditions.
2. Thickness: 12 gage.
3. Form: Roll-formed 3-sided or tubular shape, perforated with 9/16 inch holes at 1-7/8 inch centers on three sides.
4. Finish: Hot dip galvanize in accordance with ASTM A 123 after fabrication, free of roughness, whiskers, unsightly spangles, icicles, runs, barbs, sags, droplets, and other surface blemishes.
5. Do not use tubing or tube steel.

D. Accessories: Clamps, bolts, nuts, washers, bracing, and other devices as required for a complete system.
1. Carbon Steel: Hot-dip galvanized in accordance with ASTM A 153.
2. Stainless Steel: Mill finish

E. Engineered Prefabricated PHP-Duct System or approved equal.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Division 1- Administrative Requirements: Verification of existing conditions before starting work.

B. Verify openings are ready to receive sleeves.

3.2 PREPARATION

A. Do not drill or cut structural members.

3.3 INSTALLATION - INSERTS

A. Install inserts for placement in concrete forms.

B. Install inserts for suspending hangers from reinforced concrete slabs and sides of reinforced concrete beams.

C. Provide hooked rod to concrete reinforcement section for inserts carrying pipe 4 inches and larger.

D. Where concrete slabs form finished ceiling, locate inserts flush with slab surface.

E. Where inserts are omitted, drill through concrete slab from below and provide through-bolt with recessed square steel plate and nut above slab.

3.4 INSTALLATION - PIPE HANGERS AND SUPPORTS

A. Install in accordance with ASME 31.9, ASTM F708, and MSS SP 89.

B. Support horizontal piping in accordance with the latest adopted edition of the IMC and IFGC.

C. Install hangers with minimum 1/2-inch space between finished covering and adjacent work.

D. Place hangers within 12 inches of each horizontal elbow.

E. Use hangers with 1-1/2-inch minimum vertical adjustment.

F. Support vertical piping at every floor.

G. Where piping is installed in parallel and at same elevation, provide multiple pipe or trapeze hangers.

H. Support riser piping independently of connected horizontal piping.

I. Provide copper plated hangers and supports for copper piping.

J. Design hangers for pipe movement without disengagement of supported pipe.

K. Prime coat exposed steel hangers and supports. Refer to Division 9. Hangers and supports located in crawl spaces, pipe shafts, and suspended ceiling spaces are not considered exposed.

L. Provide clearance in hangers and from structure and other equipment for installation of insulation. Refer to Section 23 07 00.

3.5 INSTALLATION - EQUIPMENT BASES AND SUPPORTS

A. Using templates furnished with equipment, install anchor bolts, and accessories for mounting and anchoring equipment.

B. Construct supports of formed steel channel. Brace and fasten with flanges bolted to structure.

C. Anchor (Expansion) Bolts: Install anchor bolts for all plumbing piping and equipment as required. Tightly fit and clamp base-supported equipment anchor bolts at all equipment support points. Provide locknuts where piping and equipment is hung. Install anchor (expansion) bolts in holes drilled in concrete where necessary to hang piping or equipment, or to anchor stationary equipment from existing concrete slabs

3.6 INSTALLATION - FLASHING

A. Provide flexible flashing and metal counter flashing where piping penetrates weather or waterproofed walls, floors, and roofs. For pipes through outside walls, turn flanges back into wall and caulk, metal counter-flash and seal.

B. Provide curbs for mechanical roof installations as indicated on the plans.

C. Adjust storm collars tight to pipe with bolts; caulk around top edge.

3.7 INSTALLATION - SLEEVES

A. Exterior watertight entries: Seal with mechanical sleeve seals.

B. Set sleeves in position in forms. Provide reinforcing around sleeves.

C. Size sleeves large enough to allow for movement due to expansion and contraction. Provide for continuous insulation wrapping.

D. Where piping or penetrates floor, ceiling, or wall, install sleeve, close off space between pipe or duct and adjacent work with fire stopping insulation and caulk seal. Use fire rated caulking where area or occupancy separation walls are penetrated. Provide close fitting metal collar or escutcheon covers at both sides of penetration.

E. Install chrome plated steel escutcheons at finished surfaces.

3.8 INSTALLATION – ROOF SUPPORTS

A. Install in accordance with manufacturer’s instructions.

B. Install bracing if required.

C. Supports/bases to be installed on traffic pads and support duct without roof penetrations, flashing, or damage to roof materials.

3.9 PROTECTION OF FINISHED WORK

A. Division 1 - Execution and Closeout Requirements: Requirements for protecting finished Work.

B. Protect adjacent surfaces from damage by material installation.

END OF SECTION

IDENTIFICATION FOR HVAC PIPING, DUCTWORK, AND EQUIPMENT

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Asbestos, lead, and other hazardous materials are present in the building and may impact the work of all trades. Regulated air contaminates, including asbestos and lead, are also present in settled and concealed dust in and on architectural, structural, mechanical, and electrical components or systems throughout the building. All trades shall coordinate with other trades and conduct their work to prevent worker exposure or site contamination. Refer to Specification Section 02 26 00, hazardous materials survey report and Section 01 35 45, airborne contaminant control for specific information concerning disturbing, removing, and disposing of these materials and the installation of new materials or components. This notification is provided in accordance with EPA and OSHA requirements.

B. Notification of Child Occupied Facility: Portions of this building are classified as a Child Occupied Facility in accordance with 40 CFR 745 and lead-based paints may be present on components to be disturbed in those areas. Personnel performing work in these areas must comply with the requirements of 40 CFR 745, including training, work practices and cleaning of the work area. Refer to Specification Divisions 0, 1 and 2 for specific information concerning disturbing, removing and disposing of lead materials and the installation of new materials or components. This notification is provided in accordance with EPA and OSHA requirements.

1.2 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specifications Sections, apply to this section.

1.3 SUMMARY

A. Section Includes identification of HVAC piping, ductwork and equipment installed under Division 23.

B. Related Sections:

1. Division 9 - Painting and Coating: Execution requirements for painting specified by this section.

1.4 REFERENCES

A. American Society of Mechanical Engineers:

1. ASME A13.1 - Scheme for the Identification of Piping Systems.

1.5 SUBMITTALS

A. Division 1 - Submittal Procedures: Submittal procedures.

B. Product Data: Submit manufacturers catalog literature for each product required.

1.6 CLOSEOUT SUBMITTALS

A. Division 1 - Execution and Closeout Requirements: Closeout procedures.

B. Project Record Documents: Record actual locations of tagged valves; include valve tag numbers.

1.7 QUALITY ASSURANCE

A. Conform to ASME A13.1 for color scheme for identification of piping systems and accessories.

PART 2 - PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS

A. Craftmark Pipe Markers.

B. Marking Services Inc.

C. Brimar Industries, Inc.

D. Seton Identification Products.

E. Substitutions: Division 1 - Product Requirements.

2.2 NAMEPLATES

A. Product Description: Laminated three-layer plastic with engraved black letters on light contrasting background color. Plate size minimum 3/4” x 2-1/2”.

B. Color, unless otherwise specified, to confirm with ASME A13.1.

2.3 TAGS

A. Laminated three-layer plastic with engraved black letters on light contrasting background color. Tag size minimum 1-1/2 inches square.

B. Metal Tags: Brass with stamped letters; tag size minimum 1-1/2” inches square with smooth finished edges.

2.4 STENCILS

A. Stencils: With clean cut symbols and letters of following size:

Outside Diameter of Insulation, Pipe or Duct	Length of Color Field	Size of Letters
3/4" - 1-1/4"	8"	1/2"
1-1/2" - 2"	8"	3/4"
2-1/2" - 6"	12"	1-1/4"
8" - 10"	24"	2-1/2"
Over 10"	32"	3-1/2"
Ductwork and Equipment	------	2-1/2"

B. Stencil Paint: Semi-gloss enamel, colors and lettering size conforming to ASME A13.1.

2.5 PIPE MARKERS

A. Color and Lettering: Conform to ASME A13.1.

B. Plastic Pipe Markers: Factory fabricated, flexible, semi-rigid plastic, preformed to fit around pipe or pipe covering. Larger sizes may have maximum sheet size with spring fastener. Minimum information indication flow direction arrow and fluid being conveyed.

C. Plastic Tape Pipe Markers: Flexible, vinyl film tape with pressure sensitive adhesive backing and printed markings.

D. Plastic Underground Pipe Markers: Bright colored continuously printed plastic ribbon tape, minimum 6 inches wide by 4 mil thick, manufactured for direct burial service.

PART 3 - EXECUTION

3.1 PREPARATION

A. Degrease and clean surfaces to receive adhesive for identification materials.

B. Prepare surfaces in accordance with Division 9 for stencil painting.

3.2 INSTALLATION

A. Apply stencil painting in accordance with Division 9.

B. Install identifying devices after completion of coverings and painting.

C. Install plastic nameplates with corrosive-resistant mechanical fasteners, or adhesive.

D. Install labels with sufficient adhesive for permanent adhesion and seal with clear lacquer. For unfinished canvas covering, apply paint primer before applying labels.

E. Install tags using corrosion resistant chain. Number tags consecutively by location.

F. Identify control panels and major control components outside panels with plastic nameplates.

G. Identify piping, concealed or exposed, with plastic tape pipe markers or stenciled painting. Use

H. Locations: Nameplates shall be located so as to be readily visible to maintenance personnel. Motor nameplates shall be readily visible on accessible, three phase motors, otherwise a duplicate motor nameplate shall be permanently affixed to the driven machinery in a visible location.

END OF SECTION

HVAC INSULATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Asbestos, lead, and other hazardous materials are present in the building and may impact the work of all trades. Regulated air contaminates, including asbestos and lead, are also present in settled and concealed dust in and on architectural, structural, mechanical, and electrical components or systems throughout the building. All trades shall coordinate with other trades and conduct their work to prevent worker exposure or site contamination. Refer to Specification Section 02 26 00, hazardous materials survey report and Section 01 35 45, airborne contaminant control for specific information concerning disturbing, removing, and disposing of these materials and the installation of new materials or components. This notification is provided in accordance with EPA and OSHA requirements.

B. Notification of Child Occupied Facility: Portions of this building are classified as a Child Occupied Facility in accordance with 40 CFR 745 and lead-based paints may be present on components to be disturbed in those areas. Personnel performing work in these areas must comply with the requirements of 40 CFR 745, including training, work practices and cleaning of the work area. Refer to Specification Divisions 0, 1 and 2 for specific information concerning disturbing, removing and disposing of lead materials and the installation of new materials or components. This notification is provided in accordance with EPA and OSHA requirements.

1.2 SUMMARY

A. Section Includes:

1. HVAC equipment insulation, jackets, and accessories.
2. Ductwork Insulation, jackets, and accessories.

1.3 RELATED WORK

A. Division 7 - Firestopping: Product requirements for firestopping for placement by this section.

B. Division 9 - Painting and Coating: Execution requirements for painting insulation jackets and covering specified by this section.

C. Section 23 05 29 - Hangers and Supports for HVAC Piping, Ductwork and Equipment.

D. Section 23 05 53 - Identification for HVAC Piping, Ductwork and Equipment.

1.4 REFERENCES

A. ASTM International:

1. ASTM B209 - Aluminum and Aluminum-alloy Sheet and Plate.
2. ASTM C450 - Standard Practice for Fabrication of Thermal Insulating Fitting Covers for NPS Piping, and Vessel Lagging.
3. ASTM C518 – Standard Test Method for Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus.
4. ASTM C533 - Standard Specification for Calcium Silicate Block and Pipe Thermal Insulation.
5. ASTM C534 - Standard Specification for Preformed Flexible Elastomeric Cellular Thermal Insulation in Sheet and Tubular Form.
6. ASTM C547 - Standard Specification for Mineral Fiber Pipe Insulation.
7. ASTM C552 - Cellular Glass Block and Pipe Thermal Insulation.
8. ASTM C553 - Mineral Fiber Blanket and Felt Insulation.
9. ASTM C578 - Preformed, Block Type Cellular Polystyrene Thermal Insulation.
10. ASTM C585 - Standard Practice for Inner and Outer Diameters of Rigid Thermal Insulation for Nominal Sizes of Pipe and Tubing (NPS System).
11. ASTM C612 - Mineral Fiber Block and Board Thermal Insulation.
12. ASTM C1136 - Standard Specification for Flexible, Low Permeance Vapor Retarders for Thermal Insulation.
13. ASTM C1427 - Standard Specification for Preformed Flexible Elastomeric Cellular Thermal Insulation in Sheet and Tubular Form.
14. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials.
15. ASTM E96 - Standard Test Methods for Water Vapor Transmission of Materials.

B. National Fire Protection Association:

1. NFPA 255 – Standard Method of Test of Surface Burning Characteristics

C. Underwriters Laboratories Inc:

1. UL 723 – Test for Surface Burning Characteristic of Building Materials

1.5 SUBMITTALS

A. Division 1 - Submittal Procedures: Submittal procedures.

B. Product Data: Submit product description, thermal characteristics and list of materials and thickness for each service, and location.

C. Manufacturer's Installation Instructions: Submit manufacturers published literature indicating proper installation procedures.

1.6 QUALITY ASSURANCE

A. Test insulation for maximum flame spread index of 25 and maximum smoke developed index of not exceeding 50 in accordance with ASTM E84 and UL 723.

B. Pipe insulation manufactured in accordance with ASTM C585 for inner and outer diameters.

C. Factory fabricated fitting covers manufactured in accordance with ASTM C450.

1.7 QUALIFICATIONS

A. Manufacturer: Company specializing in manufacturing products specified in this section with minimum three years' experience.

B. Applicator: Company specializing in performing Work of this section with minimum three years' experience.

1.8 DELIVERY, STORAGE, AND HANDLING

A. Division 1 - Product Requirements: Requirements for transporting, handling, storing, and protecting products.

B. Accept materials on site in original factory packaging, labeled with manufacturer's identification, including product density and thickness.

C. Protect insulation from weather and construction traffic, dirt, water, chemical, and damage, by storing in original wrapping.

1.9 ENVIRONMENTAL REQUIREMENTS

A. Division 1 - Product Requirements: Environmental conditions affecting products on site.

B. Install insulation only when ambient temperature and humidity conditions are within range recommended by manufacturer.

C. Maintain temperature before, during, and after installation for minimum period of 24 hours.

1.10 FIELD MEASUREMENTS

A. Verify field measurements prior to fabrication.

1.11 WARRANTY

A. Division 1 - Execution and Closeout Requirements: Product warranties and product bonds.

PART 2 - PRODUCTS

2.1 MANUFACTURER

A. Certain-Teed.

B. Johns Manville.

C. Knauf.

D. Owens-Corning.

E. Substitutions: Division 1 - Product Requirements.

2.2 INSULATION - DUCTWORK

A. Type D-1: Exterior FSK Duct Wrap: Flexible glass fiber; ASTM C553; commercial grade; 'k' value of 0.27 at 75º F; rigid fiber board; ASTM C612, ‘k’ value of 0.24 at 75° F, 3.0 lb./cu. ft. density. 0.00035 inch foil scrim facing. Minimum thermal performance shall be R=4.8. Johns Manville “Microlite Duct Wrap” and Certainteed “IB board” or equal.

B. Type D-2: Duct Liner: Flexible glass fiber; ASTM C1071; 'k' value of 0.24 at 75º F; coated air side for maximum 5,000 ft./min. air velocity, UL listed adhesive galvanized steel pins. Johns Manville “Permacote Linacoustic" or approved equal.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Division 1 - Administrative Requirements: Coordination and project conditions.

B. Verify duct has been tested before applying insulation materials.

C. Verify surfaces are clean and dry, with foreign material removed.

3.2 INSULATION - DUCTWORK

A. Install materials in accordance with manufacturer's instructions.

B. Provide insulation with vapor barrier when air conveyed may be below ambient temperature. Continue insulation with vapor barrier through penetration.

C. Exterior Insulation (D-1) Application:

1. Secure insulation with vapor barrier with wires and seal jacket joints with vapor barrier adhesive or tape to match jacket.
2. Secure insulation without vapor barrier with staples, tape, or wires.
3. Install without sag on underside of ductwork. Use adhesive or welded mechanical fasteners to prevent sagging. Secure insulation with mechanical fasteners on 15 inch centers maximum, on bottom and side of ductwork with dimension exceeding 20 inches. Seal vapor barrier penetrations by mechanical fasteners with vapor barrier adhesive. Stop and point insulation around access doors and damper operators to allow operation without disturbing wrapping.
4. Maximum 25% compression.

D. Liner (D-2) Application:

1. Adhere insulation with adhesive for 100 percent coverage. Secure insulation with mechanical fasteners on 15 inch centers maximum on top and side of ductwork with dimension exceeding 20 inches. Butt joints together tightly then seal and smooth.

Thoroughly coat ends of liner with adhesive. Do not use nail-type fasteners. Seal vapor barrier penetrations by mechanical fasteners with vapor barrier adhesive.

2. Ductwork dimensions indicated are net inside dimensions required for air flow. Increase ductwork to allow for insulation thickness.
3. Install liner on all fan discharge and intake ductwork for a distance of twenty feet or five feet past the first 90º elbow, whichever is greater.

E. Where ductwork is scheduled for exterior insulation and is shown on the plans to be internally lined, the exterior insulation thickness may be reduced by the thickness of the lining. Where exterior insulation can be eliminated or reduced due to thickness of lining, overlap exterior insulation a minimum 24 inches over lined ductwork.

F. Where canvas jacketing is indicated, apply mastic in sufficient thickness to completely cover the texture of the canvas material.

3.3 SCHEDULE - DUCTWORK

DUCTWORK	TYPE	INSULATION THICKNESS (Inch)	FINISH
Exhaust & Relief Ducts Within 10 ft. of Exterior Openings	D-1	1" Rigid	Flexible FSK C10”, rigid insulation with canvas >10” use in mechanical rooms
Outside Air Intake Ducts	D-1	2" Rigid	CANVAS
Return and Relief Ducts in Mechanical Rooms	D-1, D-2	1” Rigid	CANVAS

END OF SECTION

DIRECT DIGITAL CONTROL SYSTEMS FOR HVAC

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Asbestos, lead, and other hazardous materials are present in the building and may impact the work of all trades. Regulated air contaminates, including asbestos and lead, are also present in settled and concealed dust in and on architectural, structural, mechanical, and electrical components or systems throughout the building. All trades shall coordinate with other trades and conduct their work to prevent worker exposure or site contamination. Refer to Specification Section 02 26 00, hazardous materials survey report and Section 01 35 45, airborne contaminant control for specific information concerning disturbing, removing, and disposing of these materials and the installation of new materials or components. This notification is provided in accordance with EPA and OSHA requirements.

B. Notification of Child Occupied Facility: Portions of this building are classified as a Child Occupied Facility in accordance with 40 CFR 745 and lead-based paints may be present on components to be disturbed in those areas. Personnel performing work in these areas must comply with the requirements of 40 CFR 745, including training, work practices and cleaning of the work area. Refer to Specification Divisions 0, 1 and 2 for specific information concerning disturbing, removing and disposing of lead materials and the installation of new materials or components. This notification is provided in accordance with EPA and OSHA requirements.

C. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specifications Sections, apply to this section.

1.2 RELATED SECTIONS

A. Section 23 09 93 – Sequence of Operation

1.3 GENERAL REQUIREMENTS

A. This section specifies the requirements for the Building Automation System (BAS) to be installed in conjunction with this project.

B. The BAS contractor shall furnish and install a fully integrated building automation system, incorporating direct digital control (DDC) and electric control for energy management, equipment monitoring and control, and subsystems as specified herein.

C. The BAS contractor shall be responsible for all BAS and temperature control wiring for a complete and operable system. All wiring shall be done in accordance with Division 26 of this specification and all local and national codes.

D. A new PC client workstation is not required. The existing client workstation shall be reused. The existing ASD Apogee server at Facilities Maintenance shall be updated at the completion of this project to reflect any additions and changes made during this project.

E. All graphics, programming and host databases shall be updated to reflect any changes or additions made under this contract. All programming shall follow the latest revision of the established building automation system standards of the Anchorage School District.

F. The existing DDC panels in the building shall remain. Connect the new heat trace control points to the existing MBC panel located in the Boiler Room. Provide point expansion modules to accommodate the new control points. After contract award or as directed by ASD, provide a cost proposal to upgrade the remaining SCU/MBC/MEC legacy panels to the PXC-type controllers.

1.4 WORK BY OTHERS

A. The Electrical contractor (Division 26) provides:

1. Wiring of all power feeds through disconnects and starters to electrical motors.
2. Wiring of any remote start/stop switches and manual or automatic motor speed control devices not furnished by the BAS contractor
3. Power wiring.

1.5 SUBMITTALS / O&M MANUALS

A. All submittals will be bound in white D-ring binders with sufficient ring capacity available for future additions. Electronic submittals are acceptable if directed by the owner.

B. Progression from Submittal to O&M Manual can take place using the same binders as long as all applicable material is properly updated.

C. Prior to beginning on-site installation, the BAS contractor will submit four (4) complete sets of documentation containing the following:

1. Sequence of Operations (Designer to provide electronic text version)
2. Riser Diagrams
3. Control Diagrams
4. Panel layout(s)
5. Valve Schedule
6. Point Summary Report
7. Product Data

D. The O&M Manuals will consist of the following:

1. Sequence of Operations
2. Riser Diagrams
3. Control Diagrams
4. Panel layouts
5. Valve Schedule
6. Point Summary Report
7. Commented Program Code
8. Trend Logs
9. Product Data

1.6 INSTALLATION SCHEDULING AND COORDINATION

A. Wherever possible, remove any existing controls-related wiring, pneumatic tubing and electrical conduit that is not reused as part of the new building automation system.

PART 2 - PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS

A. Acceptable manufacturers are limited to the following:

1. Siemens Industry, Inc. 5333 Fairbanks St., Ste. B, Anchorage, AK 99518. Contact Siemens at (907) 563-2242 for specific questions.
2. No substitutions, No alternate brands accepted.

2.2 INTERPOSING RELAYS AND SIGNAL TRANSMITTERS

A. All necessary interposing relays and signal transmitters shall be furnished to make the system a full and operable system as required by the Sequence of Operations.

2.3 AIR AND WATER FLOW PROOF DEVICES

A. Not required for this project.

2.4 DAMPER ACTUATORS

A. Not required for this project.

2.5 AIR FLOW MEASURING STATIONS

A. Not required for this project.

PART 3 - EXECUTION

3.1 RELATED DOCUMENTS

A. Refer to General Conditions, Basic Materials and Methods and Division 16.

3.2 GENERAL

A. Do not install control devices in locations where they are subject to damage or malfunction due to normally encountered ambient temperatures.

B. Mount damper operators and other control devices secured to insulated ductwork on brackets such that the device is external of the insulation.

3.3 IDENTIFICATION

A. All controllers, switches, relays, thermostats and actuators shall be permanently tagged for identification.

B. The tagging scheme shall be reflected on the control drawings.

C. Submit proposed identification method, specifically listing each device and the identification tag to be applied.

3.4 INSTALLATION AND WIRING

A. Install, connect and wire the items included under this Section. This work includes providing required conduit, wire, fittings, and related wiring accessories. All wiring in exposed or inaccessible areas shall be installed in EMT conduit. Plenum-rated cable may be used in concealed, accessible areas only, such as plenums above suspended ceilings or raised floors.

B. Provide wiring between thermostats and unit heater motors, and all control and alarm wiring.

C. Provide conduit and wiring between the BAS panels and the temperature, humidity, or pressure sensing elements, including low voltage control wiring in conduit or plenum-rated cable.

D. Provide conduit and control wiring for devices specified in this Section.

E. Plenum-rated cabling is acceptable in concealed, accessible spaces. All exposed control wiring and all wiring in mechanical rooms shall be enclosed in EMT conduit.

F. Provide conduit and signal wiring between motor starters in motor control centers and high and/or low temperature relay contacts and remote relays in BAS panels located in the vicinity of motor control centers.

G. Provide conduit and wiring between the sensors, metering, instrumentation, indicating devices, miscellaneous alarm points, remotely operated contactors, and BAS panels, as shown on the drawings or as specified.

H. All wiring to be compliant with the Division 26 requirements and the NEC.

I. Provide electrical wall boxes and conduit sleeves for all wall-mounted devices. Mount thermostats at 48 inches AFF unless otherwise noted.

3.5 WARRANTY

A. Upon completion of the project, as defined in the Contract Conditions, a warranty period of one (1) year shall commence. The warranty shall consist of a commitment by the BAS contractor to provide, at no cost to the Owner, parts and labor as required to repair or replace such parts of the control system that prove inoperative due to defective materials or installation practices. The warranty expressly excludes routine service such as instrument calibration.

3.6 TREND LOGS

A. BAS contractor shall prepare trend logs for all points required to show system calibration and stability.

B. These logs shall document building operation after the installation, balancing and calibration is completed and after the control system is fully operational. Setpoints, valve positions, etc. shall be adjusted to artificially induce the sequences to occur.

3.7 COMMISSIONING AND SYSTEM DEMONSTRATION

A. Comply with any commissioning requirements specified in the contract documents.

B. BAS contractor shall demonstrate complete and proper operation of all systems per the Sequence of Operations.

C. The demonstration shall include, but not necessarily be limited to, the following:

1. Review of the Trend Logs.
2. Complete and proper operation of control systems including simulations.
3. Access to all devices for required maintenance.
4. Review of associated graphics on the operator workstation.

3.8 TRAINING

A. Two (2) hours of on-site instruction will be provided by the BAS contractor to familiarize operating personnel with the control system. instructions will include:

1. A brief description of the controls' sequence of operation.
2. A discussion and explanation of all alarms, switches and gauges.
3. A summary and explanation of steps to be taken in response to specific alarms or control malfunctions.
4. Building walk-through to physically locate and examine all control devices and demonstrate control setpoint adjustment procedures.
5. Instructions regarding adjustment procedures shall emphasize methods for continual building "fine-tuning".

3.9 SEQUENCE OF OPERATION

A. Reference: Section 23 09 93 – Sequence of Operation. If no sequence of operation is provided, then provide sequences that meet the latest published version of the ASD Building Automation System standards maintained by ASD and Siemens.

END OF SECTION

SEQUENCE OF OPERATIONS FOR HVAC CONTROLS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Asbestos, lead, and other hazardous materials are present in the building and may impact the work of all trades. Regulated air contaminates, including asbestos and lead, are also present in settled and concealed dust in and on architectural, structural, mechanical, and electrical components or systems throughout the building. All trades shall coordinate with other trades and conduct their work to prevent worker exposure or site contamination. Refer to Specification Section 02 26 00, hazardous materials survey report and Section 01 35 45, airborne contaminant control for specific information concerning disturbing, removing, and disposing of these materials and the installation of new materials or components. This notification is provided in accordance with EPA and OSHA requirements.

B. Notification of Child Occupied Facility: Portions of this building are classified as a Child Occupied Facility in accordance with 40 CFR 745 and lead-based paints may be present on components to be disturbed in those areas. Personnel performing work in these areas must comply with the requirements of 40 CFR 745, including training, work practices and cleaning of the work area. Refer to Specification Divisions 0, 1 and 2 for specific information concerning disturbing, removing and disposing of lead materials and the installation of new materials or components. This notification is provided in accordance with EPA and OSHA requirements.

1.2 SECTION INCLUDES

A. Sequence of Operations for Control System, requirements for system control operation, alarms and monitoring.

1.3 RELATED SECTIONS

A. Section 23 05 29 - Hangers and Supports for HVAC Piping and Equipment

B. Section 23 05 53 - Identification for HVAC Piping, Ductwork and Equipment

C. Section 23 07 00 - HVAC Insulation

D. Section 23 09 23 - Direct Digital Control System for HVAC

E. Section 23 31 00 - HVAC Ducts and Casings

F. Section 23 37 00 - Air Outlets and Inlets

1.4 SYSTEM DESCRIPTION

A. This Section defines the manner and method by which the controls function. Requirements for each type of control system operation are specified. Equipment, devices, and system components required for control systems are specified in other Sections.

B. Submit under provisions of Division 1.

C. Submit diagrams indicating mechanical system controlled and control system components. Label with settings, adjustable range of control and limits. Include written description of control sequence.

D. Include flow diagrams for each control system, graphically depicting control logic.

E. Include draft copies of graphic displays indicating mechanical system components, control system components, and controlled function status and value.

1.5 PROJECT RECORD DOCUMENTS

A. Submit documents under provisions of Division 1.

B. Accurately record actual setpoints and settings of controls, including changes to sequences made after submission of shop drawings.

1.6 COMMISSIONING

A. Fully commission all new systems, subsystems and equipment that provides control function. Provide demonstration of all control functions for each item of mechanical equipment to the owner and the Owners representative at substantial completion. Provide on-site demonstration and functional verification in accordance with Division 1.

PART 2 - PRODUCTS – NOT USED

PART 3 - EXECUTION

3.1 ELECTRIC HEAT TRACE CONTROL (ROOF DRAIN OVERFLOW RAINLEADER PIPING)

A. Alarms:

1. No Power.

B. Digital Control and Indication:

1. On-Off Control.

C. Automated Control:

1. Heat trace shall be off from May 1st through September 31st.
2. For the months of October, April and May the outside air temperature is monitored and if the temperature has remained above 35°F for 3 full days including the current day the heat trace turns off. If the temperature drops below 32°F at any time the heat trace is turned on.
3. For the months of November through the end of March the heat trace circuits remain on.

END OF SECTION

HVAC DUCTS AND CASINGS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Asbestos, lead, and other hazardous materials are present in the building and may impact the work of all trades. Regulated air contaminates, including asbestos and lead, are also present in settled and concealed dust in and on architectural, structural, mechanical, and electrical components or systems throughout the building. All trades shall coordinate with other trades and conduct their work to prevent worker exposure or site contamination. Refer to Specification Section 02 26 00, hazardous materials survey report and Section 01 35 45, airborne contaminant control for specific information concerning disturbing, removing, and disposing of these materials and the installation of new materials or components. This notification is provided in accordance with EPA and OSHA requirements.

B. Notification of Child Occupied Facility: Portions of this building are classified as a Child Occupied Facility in accordance with 40 CFR 745 and lead-based paints may be present on components to be disturbed in those areas. Personnel performing work in these areas must comply with the requirements of 40 CFR 745, including training, work practices and cleaning of the work area. Refer to Specification Divisions 0, 1 and 2 for specific information concerning disturbing, removing and disposing of lead materials and the installation of new materials or components. This notification is provided in accordance with EPA and OSHA requirements.

1.2 SUMMARY

A. Section Includes:

1. Low pressure ducts.
2. Medium and high-pressure ductwork.

1.3 RELATED WORK

A. Section 23 05 29 - Hangers and Supports for HVAC Piping and Equipment

B. Section 23 05 53 - Identification for HVAC Piping, Ductwork and Equipment

C. Section 23 07 00 - HVAC Insulation

1.4 REFERENCES

A. ASTM International:

1. ASTM A 90 - Weight of Coating on Zinc-Coated (Galvanized) Iron or Steel Articles.
2. ASTM A 167 - Stainless and Heat-Resisting Chromium-Nickel Steel Plate, Sheet, and Strip.
3. ASTM A 525 - General Requirements for Steel Sheet, Zinc- Coated (Galvanized) by the Hot-Dip Process.
4. ASTM A 527 - Steel Sheet, Zinc-Coated (Galvanized) by Hot-Dip Process, Lock Forming Quality.

B. American Society of Heating, Refrigerating and Air Conditioning Engineers:

1. ASHRAE - Handbook Fundamentals; Duct Design.
2. ASHRAE - Handbook Equipment; Duct Construction.

C. American Society of Civil Engineers

1. ASCE 7 – Minimum Design Loads for Buildings and Other Structures, Latest adopted Edition.

D. International Code Council:

1. IBC – International Building Code, Latest Adopted Edition.

E. National Fire Protection Association:

1. NFPA 90A - Standard for the Installation of Air Conditioning and Ventilating Systems.
2. NFPA 90B - Standard for the Installation of Warm Air Heating and Air Conditioning Systems.
3. NFPA 96 - Standard for Ventilation Control and Fire Protection of Commercial Cooking Operations.

F. Sheet Metal and Air Conditioning Contractors:

1. SMACNA - HVAC Air Duct Leakage Test Manual.
2. SMACNA - HVAC Duct Construction Standard - Metal and Flexible.

G. Underwriters Laboratories Inc.:

1. UL 181 - Factory-Made Air Ducts and Connectors.

1.5 QUALIFICATIONS

A. Manufacturer: Company specializing in manufacture, assembly, and field performance of pumps with minimum three years experience.

B. Installer: Company specializing in performing Work of this section with minimum three years documented experience approved by manufacturer.

1.6 DEFINITIONS

A. Duct Sizes: Inside clear dimensions. For lined ducts, maintain sizes inside lining.

B. Low Pressure: Three pressure classifications: 1/2-inch WG positive or negative static pressure and velocities less than 2,000 fpm; 1-inch WG positive or negative static pressure and velocities less than 2,500 fpm and 2-inch WG positive or negative static pressure and velocities less than 2,500 fpm.

C. Medium Pressure: Three pressure classifications: 3-inch WG positive or negative static pressure and velocities less than 4,000 fpm, 4-inch WG positive static pressure and velocities greater than 2,000 fpm, 6-inch WG positive static pressure and velocities greater than 2,000 fpm.

1.7 REGULATORY REQUIREMENTS

A. Construct ductwork to NFPA 90A and NFPA 90B standards.

1.8 SUBMITTALS

A. Submit product data under provisions of Division 1.

1.9 QUALITY ASSURANCE

A. ASHRAE Compliance: Applicable requirements in ASHRAE 62.1-2004, Section 5 – “Systems and Equipment” and Section 7 – “Construction and System Start-Up.”

B. ASHRAE/IESNA Compliance: Applicable requirements in ASHRAE/IESNA 90.1-2004, Section 6.4.4 – “HVAC System Construction and Insulation.”

1.10 ENVIRONMENTAL REQUIREMENTS

A. Division 1 - Product Requirements.

B. Do not install duct sealant when temperatures are less than those recommended by sealant manufacturers.

C. Maintain temperatures during and after installation of duct sealant.

1.11 FIELD MEASURMENTS

A. Verify field measurements prior to fabrication.

1.12 DELIVERY, STORAGE, AND HANDLING

A. Deliver products to site under provisions of Division 1.

B. Store and protect products under provisions of Division 1.

C. Protect systems from entry of foreign materials by temporary covers, completing sections of the work, and isolating parts of completed system.

1.13 WARRANTY

A. Division 1 - Execution and Closeout Requirements: Product warranties and product bonds.

PART 2 - PRODUCTS

2.1 MATERIALS

A. General: Non-combustible or conforming to requirements for Class 1 air duct materials, or UL 181.

B. Steel Ducts: ASTM A527 galvanized steel sheet, lock-forming quality, having zinc coating of 1.25 oz. per sq. ft. for each side in conformance with ASTM A90.

C. Insulated Flexible Ducts: Flexible duct wrapped with flexible glass fiber insulation, enclosed by seamless aluminum pigmented plastic vapor barrier jacket; maximum 0.23 K value at 75º F.

D. Fasteners: Rivets, bolts, or sheet metal screws.

E. Sealant: Non-hardening, water resistant, fire resistive, compatible with mating materials; liquid used alone or with tape, or heavy mastic. Maximum VOC content of 75 g/L.

F. Hanger Rod: Steel, galvanized; threaded both ends, threaded one end, or continuously threaded.

2.2 LOW PRESSURE DUCTWORK

A. Fabricate in accordance with SMACNA HVAC Duct Construction Standards and ASHRAE handbooks, except as indicated. Provide duct material, gauges, reinforcing, and sealing for operating pressures indicated.

B. Support in accordance with the IBC and SMACNA HVAC Duct Construction Standards.

C. Size round ducts installed in place of rectangular ducts in accordance with ASHRAE table of equivalent rectangular and round ducts. No variation of duct configuration or sizes permitted except by written permission.

D. Construct T's, bends, and elbows with radius of not less than 1-1/2 times width of duct on centerline. Where not possible and where rectangular elbows are used, provide [air foil] turning vanes. Where acoustical lining is indicated, provide turning vanes of perforated metal with glass fiber insulation.

E. Increase duct sizes gradually, not exceeding 15º divergence wherever possible. Divergence upstream of equipment shall not exceed 30º; convergence downstream shall not exceed 45º.

2.3 MEDIUM AND HIGH PRESSURE DUCTS

A. Fabricate in accordance with SMACNA HVAC Duct Construction Standards and ASHRAE handbooks, except as indicated. Provide duct material, gauges, reinforcing, and sealing for operating pressures indicated.

B. Support in accordance with the IBC and SMACNA HVAC Duct Construction Standards.

C. Construct T's, bends, and elbows with radius of not less than 1-1/2 times width of duct on centerline. Where not possible and where rectangular elbows are used, provide air foil turning vanes. Where acoustical lining is required, provide turning vanes of perforated metal with glass fiber insulation. Weld in place.

D. Transform duct sizes gradually, not exceeding 15º divergence and 30º convergence.

E. Fabricate continuously welded medium and high pressure round and oval duct fittings two gauges heavier than duct gauges indicated in SMACNA Standard. Joints shall be minimum 4 inch cemented slip joint, brazed or electric welded. Prime coat welded joints.

F. Provide standard 45 degree lateral wye takeoffs unless otherwise indicated where 90 degree conical tee connections may be used.

2.4 CASINGS

A. Fabricate casings in accordance with SMACNA HVAC Duct Construction Standards and construct for operating pressures indicated.

B. Mount floor mounted casings on 4 inch high concrete curbs. At floor, rivet panels on 8 inch centers to angles. Where floors are acoustically insulated, provide liner of 18 gauge galvanized expanded metal mesh supported at 12-inch centers, turned up 12 inches at sides with sheet metal shields.

C. Reinforce door frames with steel angles tied to horizontal and vertical plenum supporting angles. Install hinged access doors where indicated or required for access to equipment for cleaning and inspection.

D. Fabricate acoustic casings with reinforcing turned inward. Provide 16 gauge back facing and 22 gauge perforated front facing with 3/32 inch diameter holes on 5/32 inch centers. Construct panels 3 inches thick packed with 4.5 lb./cu. ft. minimum glass fiber media, on inverted channels of 16 gauge.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Install and seal ducts in accordance with SMACNA HVAC Duct Construction Standards - Metal and Flexible.

B. During construction, install temporary closures of metal or taped polyethylene on open ductwork to prevent construction dust from entering ductwork system.

C. Use crimp joints with or without bead or beaded sleeve couplings for joining round duct sizes 8 inch and smaller.

D. Install duct hangers and supports in accordance with Section 23 05 29.

E. Provide access space around pumps for service. Provide no less than minimum as recommended by manufacturer.

F. Connect flexible ducts to metal ducts with draw bands.

G. For outdoor ductwork, protect ductwork, ductwork supports, linings and coverings from weather.

H. Exhaust Outlet Locations:

1. Minimum Distance from Property Lines: 3 feet.
2. Minimum Distance from Building Openings: 3 feet.
3. Minimum Distance from Outside Air Intakes: 10 feet.

3.2 TESTING

A. Perform Duct leakage test for medium pressure ductwork upstream of VAV boxes in accordance with AHRAE/IESNA 90.1-2004, Section 6.4. Provide leakage test report.

3.3 ADJUSTING AND CLEANING

A. Clean duct system and force air at high velocity through duct to remove accumulated dust. To obtain sufficient air, clean half the system at a time. Protect equipment which may be harmed by excessive dirt with temporary filters, or bypass during cleaning.

3.4 INTERFACE WITH OTHER PRODUCTS

A. Install openings in ductwork where required to accommodate thermometers and controllers. Install pitot tube openings for testing of systems. Install pitot tube complete with metal can with spring device or screw to prevent air leakage. Where openings are provided in insulated ductwork, install insulation material inside metal ring.

B. Connect diffusers or light troffer boots to low pressure ducts [directly or] with 5 feet maximum length of flexible duct held in place with strap or clamp.

C. Connect air terminal units and air outlets and inlets to supply ducts directly or with five-foot maximum length of flexible duct. Do not use flexible duct to change direction.

3.5 DUCTWORK SCHEDULE

Air System	Material
Low/Medium Pressure Supply	Galvanized Steel
Return and Relief	Galvanized Steel
Exhaust	Galvanized Steel
Outside Air Intake	Galvanized Steel

END OF SECTION

AIR DUCT ACCESSORIES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Asbestos, lead, and other hazardous materials are present in the building and may impact the work of all trades. Regulated air contaminates, including asbestos and lead, are also present in settled and concealed dust in and on architectural, structural, mechanical, and electrical components or systems throughout the building. All trades shall coordinate with other trades and conduct their work to prevent worker exposure or site contamination. Refer to Specification Section 02 26 00, hazardous materials survey report and Section 01 35 45, airborne contaminant control for specific information concerning disturbing, removing, and disposing of these materials and the installation of new materials or components. This notification is provided in accordance with EPA and OSHA requirements.

B. Notification of Child Occupied Facility: Portions of this building are classified as a Child Occupied Facility in accordance with 40 CFR 745 and lead-based paints may be present on components to be disturbed in those areas. Personnel performing work in these areas must comply with the requirements of 40 CFR 745, including training, work practices and cleaning of the work area. Refer to Specification Divisions 0, 1 and 2 for specific information concerning disturbing, removing and disposing of lead materials and the installation of new materials or components. This notification is provided in accordance with EPA and OSHA requirements.

1.2 SECTION INCLUDES

A. Flexible duct connections.

B. Duct access doors.

C. Duct test holes.

D. Turning vanes.

1.3 RELATED WORK

A. Section 23 05 00 - Common Work Results for HVAC

B. Section 23 05 29 - Hangers and Supports for HVAC Piping and Equipment

C. Section 23 31 00 - HVAC Ducts and Casings

1.4 REFERENCES

A. NFPA 90A - Installation of Air Conditioning and Ventilating Systems.

B. SMACNA - HVAC Duct Construction Standards.

C. UL 33 - Heat Responsive Links for Fire-Protection Service.

1.5 SUBMITTALS

A. Submit product data under provisions of Division 1.

B. Provide product data for accessories and hardware used.

1.6 PROJECT RECORD DOCUMENTS

A. Submit documents under provisions of Division 1.

B. Accurately record actual locations of dampers.

PART 2 - PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS - FLEXIBLE DUCT CONNECTIONS

A. Duro-Dyne.

B. Substitutions: Under provisions of Division 1.

2.2 FLEXIBLE DUCT CONNECTIONS

A. Fabricate in accordance with SMACNA HVAC Duct Construction Standards, and as indicated.

B. UL listed fire-retardant neoprene coated woven glass fiber fabric to NFPA 90A, minimum density 20 oz. per sq. yd., approximately 3 inches wide, crimped into metal edging strip.

C. Leaded vinyl sheet, minimum 0.55 inch thick, 0.87 lbs. per sq. ft., 10 dB attenuation in 10 to 10,000 Hz range.

2.3 ACCEPTABLE MANUFACTURERS - DUCT ACCESS DOORS

A. Duro-Dyne.

B. Ruskin.

C. Hart & Cooley.

D. Substitutions: Under provisions of Division 1.

2.4 DUCT ACCESS DOORS

A. Fabricate in accordance with SMACNA HVAC Duct Construction Standards and as indicated.

B. Review locations prior to fabrication.

C. Fabricate rigid and close-fitting doors of galvanized steel with sealing gaskets and quick fastening locking devices. For insulated ductwork, install minimum one-inch-thick insulation with sheet metal cover.

D. Access doors smaller than 12 inches square may be secured with sash locks.

E. Provide two hinges and two sash locks for sizes up to 18 inches square, three hinges and two compression latches with outside and inside handles for sizes up to 24 x 48 inches. Provide a continuous hinge for larger sizes.

F. Access doors with sheet metal screw fasteners are not acceptable.

2.5 DUCT TEST HOLES

A. Cut or drill temporary test holes in ducts as required. Cap with neat patches, neoprene plugs, threaded plugs, or threaded or twist-on metal caps.

B. Permanent test holes shall be factory fabricated, airtight flanged fittings with screw cap. Provide extended neck fittings to clear insulation.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Install accessories in accordance with manufacturer's instructions.

B. Demonstrate re-setting of fire dampers to authorities having jurisdiction and Owner's representative.

C. Provide flexible connections immediately adjacent to equipment in ducts associated with fans and motorized equipment. Cover connections to medium and high-pressure fans with leaded vinyl sheet, held in place with metal straps.

D. Provide duct access doors for inspection and cleaning before and after filters, coils, fans, automatic dampers, at fire dampers, and elsewhere as indicated. Provide minimum 8 x 8 inch size for hand access, 18 x 18 inch size for shoulder access, and as indicated.

E. Provide duct test holes where indicated and required for testing and balancing purposes.

END OF SECTION

HVAC FANS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Asbestos, lead, and other hazardous materials are present in the building and may impact the work of all trades. Regulated air contaminates, including asbestos and lead, are also present in settled and concealed dust in and on architectural, structural, mechanical, and electrical components or systems throughout the building. All trades shall coordinate with other trades and conduct their work to prevent worker exposure or site contamination. Refer to Specification Section 02 26 00, hazardous materials survey report and Section 01 35 45, airborne contaminant control for specific information concerning disturbing, removing, and disposing of these materials and the installation of new materials or components. This notification is provided in accordance with EPA and OSHA requirements.

B. Notification of Child Occupied Facility: Portions of this building are classified as a Child Occupied Facility in accordance with 40 CFR 745 and lead-based paints may be present on components to be disturbed in those areas. Personnel performing work in these areas must comply with the requirements of 40 CFR 745, including training, work practices and cleaning of the work area. Refer to Specification Divisions 0, 1 and 2 for specific information concerning disturbing, removing and disposing of lead materials and the installation of new materials or components. This notification is provided in accordance with EPA and OSHA requirements.

1.2 WORK INCLUDED

A. Downblast centrifugal exhaust fan.

B. Upblast centrifugal wall exhaust fan.

1.3 RELATED WORK

A. Section 23 05 00 - Common Work Results for HVAC.

B. Section 23 05 29 - Hangers and Supports for HVAC Piping, Ductwork and Equipment.

C. Section 23 05 53 - Identification for HVAC Piping, Ductwork and Equipment.

D. Section 23 07 00 - HVAC Insulation

E. Section 23 09 23 - Direct Digital Control System for HVAC

F. Section 23 31 00 - HVAC Ducts and Casings

G. Section 23 33 00 - Duct Accessories

1.4 REFERENCES

A. AMCA 99 – Standards Handbook.

B. AMCA 210 – Laboratory Methods of Testing Fans for Rating Purposes.

C. AMCA 300 – Test Code for Sound Rating Air Moving Devices.

D. AMCA 301 – Method of Calculating Fan Sound Ratings from Laboratory Test Data.

E. ANSI/AFBMA 9 – Load Ratings and Fatigue Life for Ball Bearings.

F. ANSI/AFBMA 11 – Load Ratings and Fatigue Life for Roller Bearings.

G. SMACNA – Low Pressure Duct Construction Standard

1.5 QUALITY ASSURANCE

A. Performance Ratings: Conform to AMCA 210 and bear the AMCA Certified Rating Seal.

B. Sound Ratings: AMCA 301, tested to AMCA 300, and bear AMCA Certified Sound Rating Seal.

C. Fabrication: Conform to AMCA 99.

1.6 SUBMITTALS

A. Submit product data under provisions of Division 1.

B. Provide product data on centrifugal fans and accessories as required for the work.

C. Provide fan curves with specified operating point clearly plotted.

D. Submit sound power levels for both fan inlet and outlet at rated capacity.

1.7 OPERATION AND MAINTENANCE DATA

A. Submit operation and maintenance data under provisions of Division 1.

B. Include instructions for lubrication, motor and drive replacement, spare parts list, and wiring diagrams.

1.8 DELIVERY, STORAGE, AND HANDLING

A. Deliver products to site under provisions of Division 1.

B. Store and protect products under provisions of Division 1.

C. Protect motors, shafts, and bearings from weather and construction dust.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Greenheck

B. Cook

C. Panasonic

D. Substitutions: Under provisions of Division 1.

2.2 GENERAL

A. Fans used shall not decrease motor size, increase noise level, or increase tip speed by more than 10 percent, or increase inlet air velocity by more than 20 percent, from specified criteria. Fans shall be capable of accommodating static pressure variations of plus or minus 10 percent.

B. Base performance on sea level conditions.

C. Statically and dynamically balance fans to eliminate vibration or noise transmission to occupied areas.

2.3 DOWNBLAST BELT DRIVE CENTRIFUGAL EXHAUST FANS

A. Construction: Motor cover, shroud, curb cap, and lower windband shall be constructed of heavy gauge aluminum. The shroud shall have an integral rolled bead for extra strength. The lower windband shall have a formed edge for extra strength. Galvanized housing with hinged hood. The fan shall be leakproof and have a rigid internal support structure. The motor, bearings, and drives shall be mounted on a drive frame assembly constructed of heavy gauge steel and mounted on rubber vibration isolators out of the air stream sized to match the weight of the fan. Fan shaft mounted in ball bearing pillow blocks, provide static free belts, and corrosion resistant fasteners. Bearings with grease fittings to be L10 life of 100,00- hours minimum. Unit shall bear an engraved metal nameplate. Nameplate shall indicate design CFM, static pressure, and maximum fan RPM. Fastened so that the fan can be either completely removed from the base or hinged open. UL 705 listed power ventilator. Provide stainless steel birdscreen with a minimum 86% free area mounted to perimeter discharge.

B. Wheel: Wheel shall be non-overloading centrifugal backward inclined, constructed of aluminum. Wheel cone and fan inlet shall be matched for maximum performance and operating efficiency. Wheel shall be statically and dynamically balanced in accordance with AMCA Standard 204-05, Balance Quality and Vibration Levels for Fans.

C. Motor: Belt Driven Motor shall be heavy duty type with permanently lubricated ball bearings and furnished at the specific voltage, phase, and enclosure. Motor and drive isolated on shock mounts. Adjustable motor pully and adjustable motor plate.

D. Disconnect Switch: NEMA-1 enclosure rating, disconnect switch shall be positive electrical shut-off type wired from fan motor to junction box installed within motor compartment.

E. Provide with 18 inch tall premanufactured curb. In accordance with architectural specifications

2.4 DIRECT DRIVE CENTRIFUGAL EXHAUST FANS

A. Construction: Motor cover, shroud, curb cap, and lower windband shall be constructed of heavy gauge aluminum. The shroud shall have an integral rolled bead for extra strength. The lower windband shall have a formed edge for extra strength. Galvanized aluminum housing with hinged hood. The fan shall be leakproof and have a rigid internal support structure. The motor, bearings, and drives shall be mounted on a drive frame assembly constructed of heavy gauge steel and mounted on rubber vibration isolators out of the air stream sized to match the weight of the fan. Fan shaft mounted in ball bearing pillow blocks, and corrosion resistant fasteners. Bearings with grease fittings to be L10 life of 100,00- hours minimum. Unit shall bear an engraved metal nameplate. Nameplate shall indicate design CFM, static pressure, and maximum fan RPM. Fastened so that the fan can be either completely removed from the base or hinged open. UL 705 listed power ventilator. Provide stainless steel birdscreen with a minimum 86% free area mounted to perimeter discharge.

B. Wheel: Wheel shall be non-overloading centrifugal backward inclined, constructed of aluminum. Wheel cone and fan inlet shall be matched for maximum performance and operating efficiency. Wheel shall be statically and dynamically balanced in accordance with AMCA Standard 204-05, Balance Quality and Vibration Levels for Fans.

C. Motor: Direct drive Motor shall be heavy duty type with permanently lubricated ball bearings and furnished at the specific voltage, phase, and enclosure. Mounted on vibration isolation

D. Disconnect Switch: NEMA-1 enclosure rating, disconnect switch shall be positive electrical shut-off type wired from fan motor to junction box installed within motor compartment.

E. Provide with 18 inch tall premanufactured curb. In accordance with architectural specifications.

2.5 UPBLAST DIRECT DRIVE CENTRIFUGAL EXHAUST FANS

A. Construction: Motor cover, shroud, curb cap, and lower windband shall be constructed of heavy gauge aluminum. The shroud shall have an integral rolled bead for extra strength. The lower windband shall have a formed edge for extra strength. The fan shall be leakproof and have a rigid internal support structure. The motor, bearings, and drives shall be mounted on a drive frame assembly constructed of heavy gauge steel and mounted on rubber vibration isolators out of the air stream sized to match the weight of the fan. Provide corrosion resistant fasteners. Unit shall bear an engraved metal nameplate. Nameplate shall indicate design CFM, static pressure, and maximum fan RPM. Fastened so that the fan can be either completely removed from the base or hinged open. UL 705 listed power ventilator. Provide stainless steel birdscreen with a minimum 86% free area.

B. Wheel: Wheel shall be non-overloading centrifugal backward inclined, constructed of aluminum wheel. Wheel cone and fan inlet shall be matched for maximum performance and operating efficiency. Wheel shall be statically and dynamically balanced in accordance with AMCA Standard 204-05, Balance Quality and Vibration Levels for Fans.

C. Motor: Motor shall be heavy duty type, EC motor with permanently lubricated ball bearings, soft-start, thermal and current protection built in to unit, and furnished at the specific voltage, phase, and enclosure.

D. Disconnect Switch: NEMA-1 enclosure rating, disconnect switch shall be positive electrical shut-off type wired from fan motor to junction box installed within motor compartment.

E. Vertical mounted exhaust damper to be constructed of galvanized steel and pre-punched with mounting holes. Damper blades to be 0.025 in formed aluminum with vinyl seals on closing edge. Steel axles to be zinc plated steel with nylon type bearings.

F. Wall Bracket: Wall bracket to be constructed of 16 ga galvanized steel, pre-punched mounting holes on both wall and fan mounting surfaces. Bracket to fit between building wall and fan mounted directly to exterior wall surface. Corrosion resistant fasteners for mounting fan to bracket and wall to be provided.

2.6 BELT DRIVE LOW SILHOUETTE CENTRIFUGAL ROOF EXHAUST FAN

A. Construction: The hood shall be an aluminum fabra-style hood hinged to provide access to motor and drive assembly with galvanized steel supports. The hood shall have an inter-locking rib design to combine four material thicknesses with an I-beam design. The hood panels shall be interlocked and attached to sturdy aluminum rails. The motor, bearings, and drives shall be mounted on a drive frame assembly constructed of heavy gauge steel and mounted on rubber

vibration isolators out of the air stream sized to match the weight of the fan. Provide corrosion resistant fasteners. Unit shall bear an engraved metal nameplate. Nameplate shall indicate design CFM, static pressure, and maximum fan RPM. Fastened so that the fan can be either completely removed from the base or hinged open. UL 705 listed power ventilator. Provide stainless steel birdscreen with a minimum 86% free area.

B. Wheel: Wheel shall be non-overloading centrifugal backward inclined, constructed of aluminum wheel. Wheel cone and fan inlet shall be matched for maximum performance and operating efficiency. Wheel shall be statically and dynamically balanced in accordance with AMCA Standard 204-05, Balance Quality and Vibration Levels for Fans.

C. Motor: Motor shall be heavy duty type, EC motor with permanently lubricated ball bearings, soft-start, thermal and current protection built in to unit, and furnished at the specific voltage, phase, and enclosure.

D. Disconnect Switch: Nema-a enclosure rating, disconnect switch shall be positive electrical shut-off type wired from fan motor to junction box installed within motor compartment.

E. Vertical mounted exhaust damper to be constructed of galvanized steel and pre-punched with mounting holes. Damper blades to be 0.025 inch formed aluminum with vinyl seals on closing edge. Steel axles to be zinc plated steel with nylon ype bearings.

F. Provide with 18 inch tall premanufactured curb in accordance with architectural specifications.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Division 1 - Administrative Requirements: Coordination and project conditions.

B. Verify roof curbs are installed and dimensions are as shown on product data and instructed by manufacturer. Coordinate with architectural for roof curbs.

C. Ensure roof openings are square, accurately aligned, correctly located, and in tolerance.

D. Ensure duct is plumb, sized correctly, and to proper elevation above roof deck.

3.2 PROTECTION

A. Protect installed product and finished surfaces from damage during construction.

B. Protect installed exhaust fans to ensure that, except for normal weathering, fans will be without damage or deterioration at time of substantial completion.

3.3 INSTALLATION

A. Install fans in accordance with manufacturer’s installation instructions.

B. Do not operate fans for any purpose until ductwork is clean, filters are in place bearings lubricated, and fan has been test run under observation.

C. Install fans as specified, with resilient mountings and flexible electrical leads.

D. Install fan restraining snubbers. Flexible connectors shall not be in tension while running.

E. Provide sheaves required for final air balance.

F. Provide safety screen where inlet or outlet is exposed.

G. Secure roof exhausters with lag screws to roof curb.

H. Provide backdraft dampers as indicated.

END OF SECTION

AIR OUTLETS AND INLETS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Asbestos, lead, and other hazardous materials are present in the building and may impact the work of all trades. Regulated air contaminates, including asbestos and lead, are also present in settled and concealed dust in and on architectural, structural, mechanical, and electrical components or systems throughout the building. All trades shall coordinate with other trades and conduct their work to prevent worker exposure or site contamination. Refer to Specification Section 02 26 00, hazardous materials survey report and Section 01 35 45, airborne contaminant control for specific information concerning disturbing, removing, and disposing of these materials and the installation of new materials or components. This notification is provided in accordance with EPA and OSHA requirements.

B. Notification of Child Occupied Facility: Portions of this building are classified as a Child Occupied Facility in accordance with 40 CFR 745 and lead-based paints may be present on components to be disturbed in those areas. Personnel performing work in these areas must comply with the requirements of 40 CFR 745, including training, work practices and cleaning of the work area. Refer to Specification Divisions 0, 1 and 2 for specific information concerning disturbing, removing and disposing of lead materials and the installation of new materials or components. This notification is provided in accordance with EPA and OSHA requirements.

1.2 SUMMARY

A. Section Includes:

1. Roof Hood.

1.3 REFERENCES

A. ADC 1062 - Certification, Rating and Test Manual.

B. AMCA 500 - Test Method for Louvers, Dampers and Shutters.

C. ANSI/NFPA 90A - Installation of Air Conditioning and Ventilating Systems.

D. ARI 650 – Air Outlets and Inlets.

E. ASHRAE 70 - Method of Testing for Rating the Air Flow Performance of Outlets and Inlets.

F. SMACNA - HVAC Duct Construction Standard.

1.4 RELATED WORK

A. Section 23 05 00 - Common Work Results for HVAC

1.5 QUALITY ASSURANCE

A. Test and rate performance of air outlets and inlets in accordance with ADC Equipment Test Code 1062 and ASHRAE 70.

B. Test and rate performance of louvers in accordance with AMCA 500.

1.6 REGULATORY REQUIREMENTS

A. Conform to NFPA 90A.

B. Earthquake tabs, in seismic zones, in accordance with IBC Standards.

1.7 SUBMITTALS

A. Submit product data under provisions of Division 1.

B. Provide product data for items required for this project.

C. Review requirements of outlets and inlets as to size, finish, and type of mounting prior to submitting product data.

1.8 DELIVERY, STORAGE, AND HANDLING

A. Deliver products to site under provisions of Division 1.

B. Store and protect products under provisions of Division 1.

PART 2 - PRODUCTS

2.1 ACCEPTABLE MANUFACTURER – ROOF HOOD

A. Greenheck Fan Corporation.

B. Ruskin Company.

C. Substitutions: Division 1 - Product Requirements.

2.2 INTAKE/EXHAUST ROOF HOODS

A. Gravity roof ventilators shall be constructed of heavy gauge aluminum with interlocking seams, vertical panels are to be fully locked into hood end panels, and curb cap. Provided with 3/4" galvanized bird screen. Hood support members shall be constructed of galvanized steel and fastened so that the hood can be either completely removed from the base or hinged open.

B. Roof hood to be suitable to be installed on fabricated insulated roof curb. Coordinate with Architectural.

C. Finish color and type shall be approved by architect/owner’s representative.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Install items in accordance with manufacturers' instructions.

B. Check location of outlets and inlets and make necessary adjustments in position to conform with architectural features, symmetry, and lighting arrangement.

END OF SECTION

TESTING AND MAINTENANCE OF ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.1 RELATED DOCUMENT

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

B. Notification of Potential Hazards: Asbestos, lead and other potentially hazardous materials are present in the building that may impact the work of all trades. Regulated air contaminants, including asbestos and lead, are also present in settled and concealed dust in and on architectural, structural, mechanical and electrical components or systems throughout the building. All trades shall coordinate with other trades and conduct their work to prevent worker exposure or site contamination. Refer to Specification Divisions 0, 1 and 2 for specific information concerning disturbing, removing and disposing of these materials and the installation of new materials or components. This notification is provided in accordance with EPA and OSHA requirements.

C. Notification of Child Occupied Facility: Portions of this building are classified as a Child Occupied Facility in accordance with 40 CFR 745 and lead-based paints may be present on components to be disturbed in those areas. Personnel performing work in these areas must comply with the requirements of 40 CFR 745, including training, work practices and cleaning of the work area. Refer to Specification Divisions 0, 1 and 2 for specific information concerning disturbing, removing and disposing of lead materials and the installation of new materials or components. This notification is provided in accordance with EPA and OSHA requirements.

1.2 WORK INCLUDED

A. Megohm Testing.

B. Ground Fault Circuit Interrupter Testing.

C. Telecommunications Bonding Backbone Testing.

D. Receptacle Branch Circuit Testing.

E. Phase Rotation.

F. Phase Load Balance.

G. Heat Trace Testing.

H. Fire Alarm Testing.

I. Additional Testing and Maintenance requirements in individual equipment and system Sections

1.3 REFERENCES

A. NETA ATS – Acceptance Testing Specifications for Electrical Power Distribution Equipment and Systems.

B. ANSI/IEEE Std 81-1983 Guide for Measuring Earth Resistivity, Ground Impedance, and Earth Surface Potentials of a Ground System.

C. ANSI/TIA/EIA – 568-B.1 and Addendums, General Cabling System Requirements

1.4 SUBMITTALS

A. Submit data under provisions of Division 1 and Section 26 05 00.

B. Product Data: Submit technical information for each test instrument to include manufacturer, model number, serial number, ratings, accuracy, and National Institute of Standards and Technology (NIST) Traceable calibration certification.

1.5 CLOSEOUT SUBMITTALS

A. Operation and Maintenance Data: Submit Test Reports per Section 26 05 00.

1.6 COORDINATION

A. Provide written 72 hours advance notice of all tests to be performed to allow Owner's Representative to witness testing.

1.7 REQUIRED TEST INSTRUMENTS

A. MEGOHMMETER

1. Product Description:1000 Volt DC, portable, insulation and resistance test Megohmmeter.
2. Equipment Accuracy:

    a. 2000 Megohm Range - 3% of full Scale.

B. BRANCH CIRCUIT ANALYZER

1. Product Description: Branch circuit analyzer capable of receptacle testing of voltage drop under load, hot-neutral-ground conductor resistances, common mode (N-G) Voltage, and G.F.C.I. trip point.
2. Manufacturer: Ideal SureTest. Model: 61-156ST-1THD Wiring/Harmonic Distortion Analyzer or approved equal.
3. Equipment Accuracy:

    a. Accuracy 1% full scale ± 1 digit True RMS.

C. GROUND RESISTANCE CLAMP-ON METER

1. Product Description: Digital, direct reading clamp-on resistance ground tester.
2. Manufacturer: AEMC. Model: 3711 or approved equal.
3. Equipment Accuracy:

    a. 1.0 to 50.0 Ohms ± (1.5% + 0.1 Ohm)
    b. 50.0 to 100.0 Ohms ± (2.0% + 0.1 Ohm)
    c. 100 to 200 ± (1.5% + 0.1 Ohm)
    d. 200 to 400 Ohms ± (1.5% + 0.1 Ohm)
    e. 400 to 600 Ohms ± (1.5% + 0.1 Ohm).

1.8 MULTIMETER

A. Product Description: Digital True RMS Multimeter.

B. Equipment Accuracy:

1. AC Voltage Range: 0.75% ± 3 last single digits at 60 Hz.
2. AC Current Range: 0.90% ± 3 last single digits at 60 Hz.
3. DC Voltage Range: 0.25% ± 1 last single digit.
4. DC Current Range: 0.75% ± 1 last single digit.
5. Resistance Ranges: 0.50% ± 1 last single digit.
6. Frequency Range: 0.10% ± 1 last single digit @ 60 Hz.

C. SOUND LEVEL METER

1. Product Description: Sound Level Meter meeting ANSI S.14a Type 2, Specifications for Sound Level Meters. Capable of A-Weighted measurement.

1.9 TEST INSTRUMENT CALIBRATION

A. All test equipment shall be in good mechanical and electrical condition.

B. Provide calibration for each test instrument directly traceable to the National Institute of Standards and Technology (NIST) of higher accuracy than that of the instrument tested.

C. Provide calibration labels visible on all test equipment. Records which show date and results of instruments calibrated or tested, shall be kept up-to-date.

D. Calibrate instruments in accordance with the following frequency schedule:

1. Field instruments: 12 months maximum.
2. Up-to-date instrument calibration instructions and procedures shall be maintained for each test instrument with the equipment.

1.10 MINIMUM REPORT INFORMATION

A. Report Criteria: After each test, promptly submit one copy of report to the Owner's Representative. Provide form with the minimum following information:

1. Date issued.
2. Project title and number.
3. Name and Model of Tester and witnesses.
4. Date and time of sampling or inspection.
5. Identification of product and specifications section.
6. Type of inspection or test.
7. Date of test.
8. Results of tests.
9. Indicate compliance or non-compliance with Contract Documents.
10. Final adjustment setting values where applicable.

B. Submit copy of all tests performed in the O&M manual.

1.11 GENERAL REQUIREMENTS

A. Submit test results within 3 working days of each test and included in the O&M manual.

B. Provide qualified personnel at site to perform all testing.

C. Perform specified testing of products in accordance with specified standards or as denoted in this specification whichever is more stringent.

D. Promptly notify Owner's Representative of irregularities or non- conformance of Work or products.

E. Perform additional tests when test is performed incorrectly, deemed inaccurate, or incorrectly documented.

F. The Contractor shall provide all forms, instrumentation and test equipment, loads, and other consumables required to demonstrate the systems to Owner's Representative satisfaction.

G. Perform and submit all testing prior to substantial completion and system acceptance.

H. Retest all material, cables etc that are disturbed after testing.

I. Replace and retest all material installed which does not meet or exceed the minimum acceptable limits set forth in this specification in accordance with the contract original requirements at no additional charge to Contract Sum/Price.

PART 2 - PRODUCTS – NOT USED

PART 3 - EXECUTION

3.1 CONDUCTOR TEST

A. Tests Criteria:

1. Use Megohm meter to test all conductors sized #6AWG and larger.
2. Perform insulation-resistance test on each conductor with respect to ground and adjacent conductors. Applied potential 1000 volts DC for 600 volt rated cable.
3. Perform test immediately after installation.
4. Clean exposed cable ends with clean cloth and alcohol.
5. Test duration shall be one minute.
6. Disconnect conductors from all equipment.
7. Record the resistance of the insulated conductor under test with all other conductors connected together and to ground (metallic raceway, grounding conductor, etc).
8. Perform continuity test to insure correct cable connection.

    a. Submit test results to Owner's Representative.

B. Test Values:

1. Minimum insulation-resistance value: 50 megohms.
2. Investigate deviations between adjacent phases.

3.2 RECEPTACLE GROUND FAULT CIRCUIT INTERRUPTER TEST

A. Test Criteria:

1. Use Branch Circuit Analyzer to perform test of each GFCI protected receptacle.
2. Record trip level in ma for each outlet.
3. Submit test results to Owner's Representative.

B. Test Values:

1. Trip Range: Between 6-9 mA.

3.3 RECEPTACLE BRANCH CIRCUIT TEST

A. Test Criteria:

1. Use Branch Circuit Analyzer to perform the tests.
2. Test minimum of 10% of installed receptacles. Select receptacles to test to be farthest from the panelboard and at the end of the string or branch of the circuits. Test each receptacle located adjacent to telecommunication equipment.
3. Record Line Volts.
4. Record Line Voltage Drop % at 15 Amp Load.
5. Record Resistance of Hot in Ohms.
6. Record Resistance of Neutral in Ohms.
7. Record Resistance of Ground in Ohms.

B. Test Values:

1. Maximum Resistance of Hot: 0.5 Ohms.
2. Maximum Resistance of Neutral: 0.5 Ohms.
3. Maximum Resistance of Ground: 0.5 Ohms.
4. Maximum Voltage Drop at 15% Amp Load: <5%

3.4 PHASE ROTATION TEST

A. Test each three phase circuit for consistent phase rotation for the entire power system with a phase rotation meter.

B. Bump test each motor for proper rotation prior to use.

C. Correct conductor phase relationship to provide proper phase rotation.

D. Record the rotation sequence on each panelboard, MDP and Service circuit schedule.

E. Submit test results of each panelboard, MDP and Service to the Owner's Representative.

3.5 PHASE LOAD BALANCE TEST

A. After energizing building loads conduct a phase load balance test for each new or remodeled panelboard with a clamp on ammeter.

B. Shift loads to provide current balance within 20% of the other phases. Revise circuit directory and all conductor labels to reflect any changes.

C. Notify Owner's Representative at least 72 hours in advance before test.

3.6 HEAT TRACE TESTS

A. Test each cable to ensure it receives power and operates normally under manual control.

B. Test sequence of operations of heat trace controls per Section 23 09 93.

3.7 FIRE ALARM TESTS

A. Prior to substantial completion, test system in accordance with NFPA 72. At time of substantial completion for inspection, demonstrate that the system functions according to these specifications for the following outlined tests. Conduct approximately one-half of the system tests with the fire alarm controller operating on battery. After returning controller to normal.

B. A.C. operation, log response of charger output current and voltage.

C. Alarm Initiation: Activate each new pull station and automatic detector in the system and provide a log of response of each device.

1. Demonstrate activation of each addressable control relay module and response of connected equipment and systems.
2. Fixed temperature heat detectors: Short across the rear terminals of each such detector in the system.
3. Combination fixed and rate of rise heat detectors: Subject each detector in the system to a head source (portable heat lamp or hair dryer) to actuate the rate of rise portion of the combination unit. Replace the entire assembly and retest if the fixed temperature element of the original combination assembly is tripped.
4. Area coverage smoke detectors: Test each installed smoke detector in place with the manufacturer's recommended "field test meter" and procedure.
5. Duct mounted smoke detectors: Test each installed smoke detector in place. Demonstrate operation of fan shutdown control sequence.

D. Measure sound level in each room with calibrated dB meter. Take measurements at point in room farthest from signal and with all doors closed. Log test results on ASD Fire Alarm Notification Appliances Audio Test Report form.

1. Set Meter to A-Weighted setting
2. Meter must be placed 1.5 meters or 5 feet above floor.
3. Record maximum ambient dBA level. Sound within the occupiable area, from a temporary (less than 60 seconds) or abnormal source shall not be included in measuring maximum ambient sound level.
4. Record minimum dBA level during fire alarm.

E. Logs of the above test results to be tabulated for presentation at substantial completion inspection, and copies to be included in operation and maintenance manuals. Use M.O.A. fire alarm acceptance test from and NFPA 72 fire alarm system certification form. Samples of test forms are attached at the end of this section.

F. All testing shall be accomplished by U.L. listed Service Company. Upon completion of testing, issue U.L. certification.

G. Demonstrate reset, alarm signal silence, and other user-accessible controls at main control panel.

H. Demonstrate transmission of alarm, trouble, and supervisory signals to remote locations.

I. System supervision: demonstrate supervision of new circuits by performing the following tests. Provide a log of the system response.

1. Disconnect the end-of-the-line device in each conventional initiating device circuit and each circuit of alarm signals.
2. Disconnect each new addressable device data loop at panel and at device furthest from panel.
3. Remove a control cabinet function module to check supervision response.
4. Disconnect battery leads from each power supply.

END OF SECTION

COMMON WORK RESULTS FOR ELECTRICAL

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

B. Notification of Potential Hazards: Asbestos, lead and other potentially hazardous materials are present in the building that may impact the work of all trades. Regulated air contaminants, including asbestos and lead, are also present in settled and concealed dust in and on architectural, structural, mechanical and electrical components or systems throughout the building. All trades shall coordinate with other trades and conduct their work to prevent worker exposure or site contamination. Refer to Specification Divisions 0, 1 and 2 for specific information concerning disturbing, removing and disposing of these materials and the installation of new materials or components. This notification is provided in accordance with EPA and OSHA requirements.

C. Notification of Child Occupied Facility: Portions of this building are classified as a Child Occupied Facility in accordance with 40 CFR 745 and lead-based paints may be present on components to be disturbed in those areas. Personnel performing work in these areas must comply with the requirements of 40 CFR 745, including training, work practices and cleaning of the work area. Refer to Specification Divisions 0, 1 and 2 for specific information concerning disturbing, removing and disposing of lead materials and the installation of new materials or components. This notification is provided in accordance with EPA and OSHA requirements.

1.2 SECTION INCLUDES

A. General Requirements specifically applicable to Divisions 26-28, in addition to Division 1 provisions.

B. The electrical system equipment and installation shall comply with all provisions and requirements of this specification, as well as any and all applicable national, state and local codes and standards.

C. Fire Alarm calculations, shop drawings, and installation shall be provided by a Company with a NICET level III staff (or higher) in charge of the fire alarm system.

PART 2 - WORK SEQUENCE

2.1 COORDINATION

A. Construct Work in sequence under provisions of Division 1.

B. Coordinate the Work specified in this Division under provisions of Division 1.

C. Prepare drawings showing proposed rearrangement of Work to meet job conditions, including changes to Work specified under other Sections. Obtain permission of Architect prior to proceeding.

2.2 REFERENCES

A. ANSI/NFPA 70 - National Electrical Code, latest adopted edition including all state and local amendments.

B. NECA - Standard of Installation.

C. NETA ATS – Acceptance Testing Specifications for Electrical Power Distribution Equipment and Systems.

D. ANSI/IEEE C2 - National Electrical Safety Code latest adopted edition. Utility work only.

E. Electrical Reference Symbols: The Electrical "Legend" on drawings is standardized version for this project. All symbols shown may not be used on drawings. Use legend as reference for symbols used on plans.

F. Electrical Drawings: Drawings are diagrammatic; complimentary to the Architectural drawings; not intended to show all features of work. Install material not dimensioned on drawings in a manner to provide a symmetrical appearance. Do not scale drawings for exact equipment locations. Review Architectural, Civil, Structural, and Mechanical Drawings and adjust work to conform to conditions shown thereon. Field verification of dimensions, locations and levels is directed.

2.3 REGULATORY REQUIREMENTS

A. Conform to ANSI/NFPA 70.

B. Conform to the latest adopted edition of the International Building Code and the International Fire Code including all state and local amendments thereto.

C. Conform to ANSI/IEEE C2. Utility work only.

D. Obtain electrical permits, plan review, and inspections from authority having jurisdiction.

2.4 SUBMITTALS

A. Contractor shall provide fire alarm shop drawings for MOA and plan review.

B. Submit inspection and permit certificates under provisions of Division 1.

C. Include certificate of final inspection and acceptance from authority having jurisdiction.

D. Submittal review is for general design and arrangement only and does not relieve the Contractor from any requirements of Contract Documents. Submittal not checked for quantity, dimension, fit or proper operation. Where deviations of substitute product or system performance have not been specifically noted in the submittal by the Contractor, provisions of a complete and satisfactory working installation is the sole responsibility of the Contractor.

E. In addition to requirements referenced in Division 1, the following is required for work provided under this Division of the specification.

F. Provide material and equipment submittals containing complete listings of material and equipment shown on Electrical Drawings and specified herein. Separate from work furnished under other divisions. Index and clearly identify all material and equipment by item, name or designation used on drawings and in specifications.

G. Submit only pages which are pertinent; mark each copy of standard printed data to identify pertinent products, referenced to Specification Section and Article number. Show reference standards, performance characteristics, and capacities; wiring diagrams and controls; component parts; finishes; dimensions; and required clearances.

H. Modify manufacturer's standard schematic drawings and diagrams to supplement standard information and to provide information specifically applicable to the work. Delete information not applicable.

I. Review submittals prior to transmittal; determine and verify field measurements, field construction criteria, manufacturer's catalog numbers, and conformance of submittal with requirements of Contract Documents.

J. Coordinate submittals with requirements of work and of Contract Documents.

K. Certify in writing that the submitted shop drawings and product data are in compliance with requirements of Contract Documents. Notify Architect/Engineer in writing at time of submittal, of any deviations from requirements of Contract Documents.

L. Do not fabricate products or begin work which requires submittals until return of submittal with Architect/Engineer acceptance.

M. Equipment scheduled by manufacturer's name and catalog designations, manufacturer's published data and/or specification for that item, in effect on bid date, are considered part of this specification. Approval of other manufacturer's item proposed is contingent upon compliance therewith.

N. Submittals for Division 26 shall be complete and submitted at one time. Unless given prior approval, partial submittals will be returned unreviewed.

2.5 SUBSTITUTIONS

A. In accordance with the General Conditions and the General Requirements, Substitution and Product Options, all substitute items must fit in the available space, and be of equal or better quality including efficiency performance, size, and weight, and must be compatible with existing equipment.

2.6 PROJECT RECORD DRAWINGS

A. Maintain project record drawings in accordance with Division 1.

B. In addition to the other requirements, mark up a clean set of drawings as the work progresses to show the dimensioned location and routing of all electrical work which will become permanently concealed. Show routing of work in permanently concealed blind spaces within the building. Show complete routing and sizing of any significant revisions to the systems shown.

C. Record drawing field mark-ups shall be maintained on-site and shall be available for examination of the Owner’s Representative at all times.

2.7 OPERATION AND MAINTENANCE MANUALS

A. Provide operation and maintenance manuals for training of Owner's Representative in operation and maintenance of systems and related equipment. In addition to requirements referenced in Division 1, the following is required for work provided under this section of the specifications.

B. Manuals shall be separate from work furnished under other divisions. Prepare a separate chapter for instruction of each class of equipment or system. Index and clearly identify each chapter and provide a table of contents.

C. Unless otherwise noted in Division 1, provide one copy of all material for approval.

D. The following is the suggested outline for operation and maintenance manuals and is presented to indicate the extent of items required in manuals.

E. List chapters of information comprising the text. The following is a typical Table of Contents:

1. Lighting controls
2. Fire alarm
3. Security system
4. Video surveillance system
5. Other chapters as necessary

F. Provide the following items in sequence for each chapter shown in Table of Contents:

1. Describe the procedures necessary for personnel to operate the system including start-up, operation, emergency operation and shutdown.
2. Give complete instructions for energizing equipment and making initial settings and adjustments whenever applicable.
3. Give step-by-step instructions for shutdown procedure if a particular sequence is required.
4. Include test results of all tests required by this and other sections of the specifications.

2.8 Maintenance Instructions:

A. Provide instructions and a schedule of preventive maintenance, in tabular form, for all routine cleaning and inspection with recommended lubricants if required for the following:

1. Lighting fixtures
2. Fire alarm and detection equipment
3. Security system
4. Video surveillance system

B. Provide instructions for minor repairs or adjustments required for preventive maintenance routines, limited to repairs and adjustments which may be performed without special tools or test equipment and which requires no special training or skills.

C. Provide manufacturers' descriptive literature including approved shop drawings covering devices used in system, together with illustrations, exploded views, etc. Also include special devices provided by the Contractor.

D. Provide any information of a maintenance nature covering warranty items, etc., which have not been discussed elsewhere.

E. Include list of all equipment furnished for project, where purchased, technical representative if applicable and a local parts source with a tabulation of descriptive data of all electrical-electronic spare parts and all mechanical spare parts proposed for each type of equipment or system. Properly identify each part-by-part number and manufacturer.

2.9 DEMONSTRATION OF ELECTRICAL SYSTEMS

A. During substantial completion inspection:

1. Conduct operating test for approval under provisions of Division 1.
2. Demonstrate installation to operate satisfactorily in accordance with requirements of Contract Documents.
3. Should any portion of installation fail to meet requirements of Contract Documents, repair or replace items failing to meet requirements until items can be demonstrated to comply.
4. Have instruments available for measuring light intensities, voltage and current values, and for demonstration of continuity, grounds, or open circuit conditions.
5. Provide personnel to assist in taking measurements and making tests.
6. Provide testing and report for functional test of revised fire alarm system.

2.10 WARRANTY

A. In addition to the requirements of Division 1, or as specified in other sections. Warrant all materials, installation and workmanship for one (1) year from date of acceptance.

B. Copies of manufacturer product warranties for all equipment shall be included in the operation and installation manuals.

2.11 INSTRUCTION OF OPERATING PERSONNEL

A. In accordance with the requirements of Division 1 and this section provide services of qualified representative of supplier of each item or system listed below to instruct designated personnel of Owner in operation and maintenance of item or system.

B. Make instructions when system is complete, of number of hours indicated, and performed at time mutually agreeable.

System or Equipment	Hours of Instruction
Lighting controls	4
Security system	2
Fire alarm system	2
Video surveillance system	2

C. Certify that an Anchorage based authorized service organization regularly carries complete stock of repair parts for listed equipment or systems, that organization is available and will furnish service within 48 hours after request. Include name, address and telephone number of service organization.

D. Have approved operation and maintenance manuals and parts lists for all equipment on hand at time of instruction.

PART 3 - PRODUCTS

3.1 MATERIALS AND EQUIPMENT

A. All Materials and Equipment shall be new.

B. All Materials and Equipment shall be listed by Underwriter's Laboratories or equivalent third party listing agency for the use intended.

C. Materials and Equipment shall be acceptable to the authority having jurisdiction as suitable for the use intended when installed per listing and labeling instructions.

D. No materials or equipment containing asbestos in any form shall be used. Where materials or equipment provided by this Contractor are found to contain asbestos such items shall be removed and replaced with non- asbestos containing materials and equipment at no cost to the Owner.

E. In describing the various items of equipment, in general, each item will be described singularly, even though there may be numerous similar items.

3.2 WORKMANSHIP

A. Install Work using procedures defined in NECA Standard of Installation and/or the manufacturer's installation instructions.

3.3 TESTS

A. Notify the Owner’s representative at least 72 hours prior to conducting any tests.

B. Following completion of installation, test system ground in accordance with the requirements of NETA ATS 7.13. and all feeders in accordance with NETA ATS 7.3. Submit logs of values obtained, and nameplate data of instruments used prior to final inspection. Include a copy of all data in the power distribution section of the Operation and Maintenance Manuals.

C. Perform additional tests required under other sections of these specifications.

D. Perform all tests in the presence of the Owner's representative.

E. The Contractor shall provide written notification to the Owner's representative and the State Electrical Inspector thirty days in advance of requests for rough-in and substantial completion inspections.

3.4 PENETRATIONS OF FIRE BARRIERS

A. Related information to this section appears in Division 7, Fire Stopping.

B. All holes or voids created to extend electrical systems through fire rated floors, walls or ceiling shall be sealed with an asbestos-free intumescent fire stopping material capable of expanding 8 to 10 times when exposed to temperatures 250º F or higher.

C. Materials shall be suitable for the fire stopping of penetrations made by steel, glass, plastic and shall be capable of maintaining an effective barrier against flame, smoke and gases in compliance with the requirements of ASTM E814 and UL 1479.

D. The rating of the fire stops shall be the same as the time-rated floor, wall or ceiling assembly.

E. Install fire stopping materials in accordance with the manufacturer's instructions.

F. Unless protected from possible loading or traffic, install fire stopping materials in floors having void openings of four (4) inches or more to support the same floor load requirements as the surrounding floor.

END OF SECTION

EQUIPMENT WIRING CONNECTIONS

PART 1 - GENERAL

1.1 RELATED DOCUMENT

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

B. Notification of Potential Hazards: Asbestos, lead and other potentially hazardous materials are present in the building that may impact the work of all trades. Regulated air contaminants, including asbestos and lead, are also present in settled and concealed dust in and on architectural, structural, mechanical and electrical components or systems throughout the building. All trades shall coordinate with other trades and conduct their work to prevent worker exposure or site contamination. Refer to Specification Divisions 0, 1 and 2 for specific information concerning disturbing, removing and disposing of these materials and the installation of new materials or components. This notification is provided in accordance with EPA and OSHA requirements.

C. Notification of Child Occupied Facility: Portions of this building are classified as a Child Occupied Facility in accordance with 40 CFR 745 and lead-based paints may be present on components to be disturbed in those areas. Personnel performing work in these areas must comply with the requirements of 40 CFR 745, including training, work practices and cleaning of the work area. Refer to Specification Divisions 0, 1 and 2 for specific information concerning disturbing, removing and disposing of lead materials and the installation of new materials or components. This notification is provided in accordance with EPA and OSHA requirements.

1.2 WORK INCLUDED

A. Electrical connections to equipment specified under other Sections.

1.3 RELATED WORK

A. Division 22 – Plumbing Equipment.

B. Division 23 – HVAC Equipment.

C. Section 26 05 19 - Low-Voltage Electrical Power Conductors and Cables.

D. Section 26 05 33 - Raceway and Boxes for Electrical Systems.

1.4 REFERENCES

A. FS W-C-596 - Electrical Power Connector, Plug, Receptacle, and Cable Outlet.

B. National Electrical Manufacturers Association:

1. NEMA WD 1 - General Purpose Wiring Devices.
2. NEMA WD 5 - Specific-Purpose Wiring Devices.

1.5 SUBMITTALS

A. Submit data under provisions of Division 1 and Section 26 05 00.

B. Product Data: Submit wiring device manufacturer’s catalog information showing dimensions, configurations, and construction.

1.6 COORDINATION

A. Division 1 - Administrative Requirements: Coordination and project conditions.

B. Obtain and review shop drawings, product data, manufacturer’s wiring diagrams, and manufacturer's instructions for equipment furnished under other sections.

C. Determine connection locations and requirements.

D. Sequence rough-in of electrical connections to coordinate with installation of equipment.

E. Sequence electrical connections to coordinate with start-up of equipment.

PART 2 - PRODUCTS

A. MECHANICAL EQIUPMENT CONNECTOINS

1. Provide raceway and conductor hardwired connections, unless noted otherwise or required by the equipment manufacturer.

B. CORDS AND CAPS

1. Straight-blade Attachment Plug: NEMA WD 1.
2. Locking-blade Attachment Plug: NEMA WD 5.
3. Attachment Plug Configuration: Match receptacle configuration at outlet provided for equipment.
4. Cord Size: Suitable for connected load of equipment and rating of branch circuit overcurrent protection.

PART 3 - EXECUTION

3.1 INSPECTION

A. Verify that equipment is ready for electrical connection, wiring, and energization.

3.2 PREPARATION

A. Review equipment submittals prior to installation and electrical rough-in. Verify location, size, and type of connections. Coordinate details of equipment connections with supplier and installer.

3.3 INSTALLATION

A. Use wire and cable with insulation suitable for temperatures encountered in heat-producing equipment.

B. Make conduit connections to equipment that is subject to vibration or movement using flexible conduit. Use Liquidtight flexible conduit in damp or wet locations.

C. Install pre-finished cord set where connection with attachment plug is indicated or specified by the equipment manufacturer's installation instructions, or use attachment plug with suitable strain-relief clamps.

D. Provide suitable strain-relief clamps for cord connections to outlet boxes and equipment connection boxes.

E. Make wiring connections in control panel or in wiring compartment of pre- wired equipment in accordance with manufacturer's instructions. Provide interconnecting wiring where required.

F. Install disconnect switches, controllers, control stations, and control devices such as limit switches and temperature switches and connect with conduit and wiring as indicated in the equipment manufacturer's installation instructions.

G. Coolers and Freezers: Cut and seal conduit openings in freezer and cooler walls, floor, and ceilings.

H. Where reconnecting existing equipment, extend connections using materials and methods compatible with existing electrical installations, or as specified.

3.4 ADJUSTING

A. Cooperate with utilization equipment installers and field service personnel during checkout and starting of equipment to allow testing and balancing and other startup operations. Provide personnel to operate electrical system and checkout wiring connection components and configurations.

END OF SECTION

GROUNDING AND BONDING FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.1 RELATED DOCUMENT

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

B. Notification of Potential Hazards: Asbestos, lead and other potentially hazardous materials are present in the building that may impact the work of all trades. Regulated air contaminants, including asbestos and lead, are also present in settled and concealed dust in and on architectural, structural, mechanical and electrical components or systems throughout the building. All trades shall coordinate with other trades and conduct their work to prevent worker exposure or site contamination. Refer to Specification Divisions 0, 1 and 2 for specific information concerning disturbing, removing and disposing of these materials and the installation of new materials or components. This notification is provided in accordance with EPA and OSHA requirements.

C. Notification of Child Occupied Facility: Portions of this building are classified as a Child Occupied Facility in accordance with 40 CFR 745 and lead-based paints may be present on components to be disturbed in those areas. Personnel performing work in these areas must comply with the requirements of 40 CFR 745, including training, work practices and cleaning of the work area. Refer to Specification Divisions 0, 1 and 2 for specific information concerning disturbing, removing and disposing of lead materials and the installation of new materials or components. This notification is provided in accordance with EPA and OSHA requirements.

1.2 SECTION INCLUDES

A. Power system grounding.

B. Communication system grounding.

C. Electronic Safety and Security system grounding.

D. Electrical equipment and raceway grounding and bonding.

1.3 RELATED SECTIONS

A. The Work under this section is subject to requirements of the Contract Documents including the General Conditions, Supplementary Conditions, and sections under Division 1 General Requirements, Section 26 05 00 – Common Work Results for Electrical, Division 27 and Division 28.

B. Section 26 01 26 - Testing and Maintenance of Electrical Systems

C. Section 26 05 19 - Low Voltage Electrical Power Conductors and Cables.

1.4 REFERENCE STANDARDS

A. ANSI/NFPA 70 – National Electrical Code.

B. ASTM B 3 – Standard Specification for Soft or Annealed Copper Wire.

C. AWS A5.8/A5.8M – Specification for Filler Metals for Brazing and Braze Welding.

D. IEEE Std 81 – Guide for Measuring Earth Resistivity, Ground Impedance, and Earth Surface Potentials of a Ground System.

E. IEEE Std 142 – Recommended Practice for Grounding of Industrial and Commercial Power System.

F. UL 467 – Standard for Grounding and Bonding Equipment.

1.5 SYSTEM DESCRIPTION

A. Provide a complete grounding system for services and equipment as required by State and Local Codes, NEC, applicable portions of other NFPA codes, and as indicated herein.

1.6 SUBMITTALS

A. Product Data: Submit product data for all components provided, showing material type and dimensions. Each catalog sheet should be clearly marked to indicate exact part number provided, including all options and accessories.

1.7 CLOSEOUT SUBMITTALS

A. Project Record Drawings

1. Accurately indicate actual locations of main grounding bus, all grounding rods, concrete encased electrodes, etc.
2. Show the actual installed routing of grounding electrode conductor, and size/type of bonding conductors and termination locations of all major bonding connections (water, piping, steel, fuel tanks, etc.).

B. Test Reports

1. See Section 26 01 26 - Testing and Maintenance of Electrical Systems for grounding system tests.

1.8 COORDINATIONS

A. Division 1 – Administrative Requirements: Requirements for Coordination.

B. Complete grounding and bonding of building reinforcing steel prior to concrete placement.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Bonding Conductors: Solid bare copper wire for sizes No. 8 AWG and smaller diameter. Stranded bare copper wire for sizes No. 6 AWG and larger diameter. Conductors may be insulated conductors if used provide green insulation.

B. Grounding Conductors: Copper conductor bare or green insulated.

C. Mechanical Grounding and Bonding Connectors: Non-reversible crimp type lugs only. Use factory made compression lug for all terminations.

D. Exothermic Grounding and Bonding Connectors: AWS A5.8/A5.8M Exothermic welded type. Welding procedure shall include the proper mold and powder charge and shall conform to the manufacturer's recommendations.

E. In external locations, clamping shall be used only where a disconnect type of connection is required. Connection device may utilize threaded fasteners. Device shall be constructed such that positive contact pressure shall be maintained at all times. Machine bolts with tooth-type lock washers shall be used.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Provide a separate, insulated equipment-grounding conductor in all feeder and branch circuits. Terminate each end on a grounding lug, bus, or bushing. Multiple conductors on single lug not permitted. Each grounding conductor shall terminate on its own terminal lug.

B. Connect grounding electrode conductors to metal water pipe using a suitable ground clamp. Make connections to flanged piping at street side of flange. Provide bonding jumper around water meter and back flow preventers.

C. Telecommunications Bonding Backbone: Terminate at the electrical service entrance and at the ground bar on telecommunications backboard.

D. Provide grounding and bonding at Utility Company's metering equipment and pad-mounted transformer.

E. Bond together system neutrals, service equipment enclosures, exposed non-current carrying metal parts of electrical equipment, metal raceway systems, grounding conductor in raceways and cables, receptacle ground connectors, and plumbing and fuel systems.

F. Grounding conductors for branch circuits shall be sized in accordance with NEC, except minimum size grounding conductor shall be No. 12 AWG.

G. Grounding conductor is in addition to neutral conductor and in no case shall neutral conductor serve as grounding means.

3.2 FIELD QUALITY CONTROL

A. Inspect grounding and bonding system conductors and connections for tightness and proper installation.

B. Perform system ground test as specified in Section 26 01 26 - Testing and Maintenance of Electrical Systems.

C. Upon completion of the ground installation and before connection to the permanent facility power the Contractor shall measure the ground resistance of the grounding electrode system. The Contractor shall notify the Owner's representatives a minimum of 5 business days prior to the scheduled ground testing date so they may be present at the time of testing. The Contractor shall immediately notify the Owner's representative if the measured ground resistance is above

20 ohms. The Contractor shall submit a copy of the test report to the Owner's representative within 10 days after testing and before the ground system becomes inaccessible.

D. Continuity Test: Continuity test shall be performed on all power receptacles to ensure that the ground terminals are properly grounded to the facility ground system.

END OF SECTION

HANGERS AND SUPPORTS FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.1 RELATED DOCUMENT

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

B. Notification of Potential Hazards: Asbestos, lead and other potentially hazardous materials are present in the building that may impact the work of all trades. Regulated air contaminants, including asbestos and lead, are also present in settled and concealed dust in and on architectural, structural, mechanical and electrical components or systems throughout the building. All trades shall coordinate with other trades and conduct their work to prevent worker exposure or site contamination. Refer to Specification Divisions 0, 1 and 2 for specific information concerning disturbing, removing and disposing of these materials and the installation of new materials or components. This notification is provided in accordance with EPA and OSHA requirements.

C. Notification of Child Occupied Facility: Portions of this building are classified as a Child Occupied Facility in accordance with 40 CFR 745 and lead-based paints may be present on components to be disturbed in those areas. Personnel performing work in these areas must comply with the requirements of 40 CFR 745, including training, work practices and cleaning of the work area. Refer to Specification Divisions 0, 1 and 2 for specific information concerning disturbing, removing and disposing of lead materials and the installation of new materials or components. This notification is provided in accordance with EPA and OSHA requirements.

1.2 SECTION INCLUDED

A. Conduit supports.

B. Formed steel channel.

C. Spring steel clips.

D. Equipment bases and supports.

1.3 RELATED WORK

A. The Work under this section is subject to requirements of the Contract Documents including the General Conditions, Supplementary Conditions, and sections under Division 1 General Requirements, and Section 26 05 00 – Common Work Results for Electrical.

1.4 REFERENCES

A. International Building Code (IBC), Chapter 16 – Structural Design.

1.5 SUBMITTALS

A. Division 1: Requirements for submittals.

B. Seismic Restraint Calculations:

1. Provide structurally engineered shop drawings for seismic restraint of all electrical equipment required by the International Building Code (IBC), Chapters 16, 17. Structural design shall be based on the Seismic Use Category and Seismic Design Category as designated in these chapters.
2. Shop drawings shall be stamped by a professional engineer registered in the State of Alaska.

1.6 QUALITY ASSURANCE

A. Support systems shall be adequate for weight of equipment and conduit, including wiring, which they carry.

PART 2 - PRODUCTS

2.1 CONDUIT SUPPORTS

A. Manufacturers:

1. Allied Tube & Conduit Corp.
2. Minerallac Fastening Systems.
3. O-Z Gedney Co.
4. Substitutions: per Division 1

B. Hanger Rods: Threaded high tensile strength galvanized carbon steel with free running threads.

C. Beam Clamps: Malleable Iron, with tapered hole in base and back to accept either bolt or hanger rod. Set screw: hardened steel.

D. Conduit clamps for trapeze hangers: Galvanized steel, notched to fit trapeze with single bolt to tighten.

E. Conduit clamps - general purpose: One-hole malleable iron for surface mounted conduits.

F. Cable Ties: High strength nylon temperature rated to 185 degrees F. Self-locking.

2.2 FORMED STEEL CHANNEL

A. Manufacturers:

1. B-Line Systems
2. Allied Tube & Conduit Corp.
3. Unistrut Corp.
4. Substitutions: per Division 1

B. Product Description: Galvanized 12 gage) thick steel. With holes 1-1/2 inches on center.

PART 3 - EXECUTION

3.1 PREPARATION

A. Obtain permission from Owner’s Representative before using powder- actuated anchors.

B. Obtain permission from Owner's Representative before drilling or cutting structural members.

3.2 INSTALLATION - GENERAL

A. Fasten hanger rods, conduit clamps, and outlet and junction boxes to building structure using precast insert system, expansion anchors, preset inserts, beam clamps, or spring steel clips.

B. Use toggle bolts or hollow wall fasteners in hollow masonry partitions and walls; expansion anchors or preset inserts in solid masonry walls; self- drilling anchors or expansion anchor on concrete surfaces; sheet metal screws in sheet metal studs; and wood screws in wood construction.

C. Do not support raceways, low voltage pathways, cables, telecommunication pathways or boxes from ceiling suspension wires or suspended ceiling systems. Provide support from building structure independently to allow ceiling removal and replacement without removal of electrical system. If dedicated support wires are used, wires and wire clips must be painted or color-coded. Exception: Outlet boxes for ceiling-mounted light fixtures, speakers, video cameras, and smoke detectors may be mounted in the ceiling system.

D. Do not fasten supports to piping, ductwork, mechanical equipment, conduit, or ceiling suspension system.

E. Do not penetrate by drilling or screwing into metal roof decking. All penetrations into metal roof decking must be approved by the Project Manager in writing.

F. Fabricate supports from structural steel or steel channel, rigidly welded or bolted to present a neat appearance. Use hexagon head bolts with spring lock washers under all nuts.

G. In wet locations install free-standing electrical equipment on concrete pads. Pad top shall be a minimum of 3 ½" above the surrounding grade and shall be reinforced in accordance with Division 3 of these specifications.

H. Install surface-mounted cabinets and panelboards with minimum of four anchors.

I. Bridge studs top and bottom with channels to support flush-mounted cabinets and panelboards in stud walls.

J. Securely fasten fixtures and equipment to building structure in accordance with manufacturer's recommendations and to provide necessary earthquake anchorage.

K. Provide wall attached fixtures and equipment weighing less than 50 pounds with backing plates of at least 1/8" x 10" sheet steel or 2" x 10" fire retardant treated wood securely built into the structural walls. Submit attachment details of heavier equipment for approval.

L. Earthquake Anchorages:

M. Equipment weighing more than 50 pounds shall be adequately anchored to the building structure to resist lateral earthquake forces.

N. Total lateral (earthquake) forces shall be 1.5 times the equipment weight acting laterally in any direction through the equipment center of gravity. Provide adequate backing at structural attachment points to accept the forces involved.

O. For light fixtures installed in exposed areas (i.e. with no ceiling system), provide safety chains capable of supporting a minimum of 200 pounds. Attach safety chains to building structure and to each end of the light fixtures so as to not allow fixture to drop more than 6 inches upon primary fixture support failure.

P. Provide two minimum color-coded dedicated seismic support wires for each ceiling mounted light fixture weighing less than 50 pounds. Attach support wires to building structure independent from ceiling system and on opposing corners of the light fixtures to not allow fixture to drop more than 6 inches upon ceiling failure. Secure each end with three tight wraps within 1 inch at each end of the wire.

Q. Attach the supporting cables for all pendant fixtures to both the building structure and to the ceiling grid which they pass through.

R. Replace or repair any fireproofing damaged by the installation of supporting equipment or devices.

S. Power-driven fasteners are prohibited for tension load applications (such as supporting luminaries or conduit racks from ceiling above). Use drilled-in expansion anchors or drilled and screw-in anchors such as Kwik-Con II or Tapcon.

3.3 PROTECTION OF FINISHED WORK

A. Division 1: Requirements for protecting finished Work.

B. Protect adjacent surfaces from damage by material installation.

END OF SECTION

VIBRATION AND SEISMIC CONTROLS FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.1 RELATED DOCUMENT

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

B. Notification of Potential Hazards: Asbestos, lead and other potentially hazardous materials are present in the building that may impact the work of all trades. Regulated air contaminants, including asbestos and lead, are also present in settled and concealed dust in and on architectural, structural, mechanical and electrical components or systems throughout the building. All trades shall coordinate with other trades and conduct their work to prevent worker exposure or site contamination. Refer to Specification Divisions 0, 1 and 2 for specific information concerning disturbing, removing and disposing of these materials and the installation of new materials or components. This notification is provided in accordance with EPA and OSHA requirements.

C. Notification of Child Occupied Facility: Portions of this building are classified as a Child Occupied Facility in accordance with 40 CFR 745 and lead-based paints may be present on components to be disturbed in those areas. Personnel performing work in these areas must comply with the requirements of 40 CFR 745, including training, work practices and cleaning of the work area. Refer to Specification Divisions 0, 1 and 2 for specific information concerning disturbing, removing and disposing of lead materials and the installation of new materials or components. This notification is provided in accordance with EPA and OSHA requirements.

1.2 REFERENCE

A. The Work under this Section is subject to requirements of the Contract Documents including the General Conditions, Supplementary Conditions, and sections under Division 01 General Requirements.

1.3 DESCRIPTION

A. Seismic Category B

1. Electrical components are not required to be seismically braced.

B. Seismic Category C

1. Only electrical items that are of Importance Factor (Ip) = 1.5 are required to be seismically braced. This applies to the following:

    a. The component is required to function for life safety purposes after an earthquake, including fire protection systems, fire alarm systems, emergency lighting, etc.
    b. The component contains hazardous materials.
2. All other electrical components shall be assigned a component importance factor (Ip) = 1.0 and are not required to be seismically braced.

C. Seismic Category D, E and F

1. All electrical items that are of Importance Factor (Ip) = 1.5 are required to be seismically braced. This applies to the following:

   a. The component is required to function for life safety purposes after an earthquake, including fire protection systems, fire alarm systems, emergency lighting, etc.
   b. The component contains hazardous materials.

2. All other electrical equipment shall be assigned a component importance factor (Ip) = 1.0 and are required to be seismically braced unless one of the following conditions is satisfied:

   a. Component is MOUNTED (connection to structure) at less than 4' above the floor (to the center of gravity of the component), and weighs less than 400 lbs.
   b. Component is mounted higher than 4' (to the center of gravity of the component), but weighs less than 50 lbs (if it is concealed)
   c. Component is mounted higher than 4' (to the center of gravity of the component), but weighs less than 100 lbs (if it is exposed)
   d. Flexible connections between the components and associated conduit are provided.
   e. All runs or groupings of conduits on or off of trapezes shall be seismically braced, unless the distribution system (including conduit, wiring and fittings) weighs less than 5 pounds per linear foot.
   f. Lighting fixtures, lighted signs and ceiling fans that are not rigidly connected to ducts or piping, that are supported by chains or otherwise suspended from structure, are not required to be seismically braced, as long as;
      1) The attachment points can carry at least 140% of the weight of the fixture, and
      2) The swinging light will not create a falling debris problem by bumping into ceiling of other finishes, and
      3) Connections to structure allow for movement of the fixture without damaging the connections.

D. In accordance with ASCE 7-05 13.6.4, all electrical components with Ip = 1.5 shall also satisfy the following requirements:

1. Provisions shall be made to eliminate seismic impact between components.
2. Loads imposed on the components by attached utility or service lines that are attached to separate structures shall be evaluated.
3. Batteries on racks shall have wrap-around restraints to ensure that the batteries will not fall from the rack. Spacers shall be used between restraints and cells to prevent damage to cases. Racks shall be evaluated for sufficient lateral load capacity.
4. Internal coils of dry type transformers shall be positively attached to their supporting substructure within the transformer enclosure.
5. Electrical control panels, computer equipment, and other items with slide-out components shall have a latching mechanism to hold the components in place.
6. Electrical cabinet design shall comply with the applicable National Electrical Manufacturers Association (NEMA) standards. Cutouts in the lower shear panel that have not been made by the manufacturer and reduce significantly the strength of the cabinet shall be specifically evaluated.
7. The attachments of additional external items weighing more than 100 lbs shall be specifically evaluated if not provided by the manufacturer.

8. Where conduit, cable trays, or similar electrical distribution components are attached to structures that could displace relative to one another and for isolated structures where such components cross the isolation interface, the components shall be designed to accommodate the seismic relative displacements defined in ASCE 7-05 Section 13.3.2

E. Unless otherwise exempted above, electrical component supports and the means by which they are attached to the component shall be designed for the Seismic Category they are installed in accordance with ASCE 7-05 Section 13.6.5.

1.4 REFERENCE STANDARDS

A. Seismic anchorage and restraints shall be designed and installed in accordance with codes and standards as enforced by authorities having jurisdiction in Anchorage, Alaska. Authorities shall include Owner's insurance company.

B. Where applicable, building standards supersede those of other evaluation or listing agencies referenced in specification.

C. International Building Code (IBC), Chapter 16 – Structural Design.

D. ASCE 7-05 Chapter 13.

1.5 SUBMITTALS

A. Provide structurally engineered shop drawings for seismic restraint of all electrical equipment required by the International Building Code (IBC), Chapters 16, 17. Structural design shall be based on the Seismic Use Category and Seismic Design Category as designated in these chapters

B. Provide complete calculations, drawings and details.

C. Shop drawings shall be stamped by a professional engineer registered in the State of Alaska.

D. Submittals shall be coordinated with building Structural engineer.

E. Submit for approval, seismic restraint calculations, drawings and details to authorities having jurisdiction as required by those authorities.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Materials and devices shall be in accordance with applicable codes and standards and shall be appropriate for intended use.

B. Anchors and attachments to building structure shall be as approved by building Structural engineer.

C. Seismic restraints used in conjunction with vibration isolators may consist of loose cables, telescoping pipes or box sections, angles or sections, flat plates used as limit stops or snubbers, or other types of housing used either integral with or separate from vibration isolators to accomplish necessary seismic restraint.

2.2 EQUIPMENT

A. Equipment available with seismic rating shall be provided with rating applicable to seismic zone of project location.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Secure stationary equipment, raceways and equipment supports to structure, concrete bases, or special supports to provide protection against earthquakes and to restrain lateral or vertical movement. Where vibration isolators are used, seismic restraints shall be designed to limit lateral or vertical movement during earthquake without short-circuiting vibration isolation system.

B. Coordinate seismic restraints with project Structural Engineer and incorporate project Structural Engineer's requirements.

C. Seismic restraint methods and materials shall be supplementary to support devices specified in other sections of this specification and together shall serve as equipment support criteria.

D. Installation of devices shall be in accordance with seismic Structural engineer's drawings and details and in accordance with seismic guidelines.

E. Coordinate installation of devices with other trades and incorporate their requirements.

F. Modify raceway and equipment locations as required for seismic restraint system.

G. Seismic restraint systems shall not interfere with installation of other building systems or access.

END OF SECTION

IDENTIFICATION FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.1 RELATED DOCUMENT

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

B. Notification of Potential Hazards: Asbestos, lead and other potentially hazardous materials are present in the building that may impact the work of all trades. Regulated air contaminants, including asbestos and lead, are also present in settled and concealed dust in and on architectural, structural, mechanical and electrical components or systems throughout the building. All trades shall coordinate with other trades and conduct their work to prevent worker exposure or site contamination. Refer to Specification Divisions 0, 1 and 2 for specific information concerning disturbing, removing and disposing of these materials and the installation of new materials or components. This notification is provided in accordance with EPA and OSHA requirements.

C. Notification of Child Occupied Facility: Portions of this building are classified as a Child Occupied Facility in accordance with 40 CFR 745 and lead-based paints may be present on components to be disturbed in those areas. Personnel performing work in these areas must comply with the requirements of 40 CFR 745, including training, work practices and cleaning of the work area. Refer to Specification Divisions 0, 1 and 2 for specific information concerning disturbing, removing and disposing of lead materials and the installation of new materials or components. This notification is provided in accordance with EPA and OSHA requirements.

1.2 WORK INCLUDED

A. Nameplates and tape labels.

B. Wire and cable markers.

C. Conduit color-coding.

D. Wire markers.

E. Conduit markers.

F. Working clearance striping.

G. Low-voltage one-line diagrams and system maps.

1.3 RELATED WORK

A. The Work under this section is subject to requirements of the Contract Documents including the General Conditions, Supplementary Conditions, and sections under Division 1 General Requirements, and Section 26 05 00 – Common Work Results for Electrical.

B. Section 26 05 19 – Low Voltage Electrical Power Conductors and Cables.

C. Section 26 05 33 – Raceway and Boxes for Electrical Systems.

D. Section 26 27 26 – Wiring Devices.

1.4 SUBMITTALS

A. Division 1 and Section 26 05 00 – Common Work Results for Electrical.

B. Product Data:

1. Submit manufacturer's catalog literature for each product required.
2. Submit electrical identification schedule including list of wording, symbols, letter size, color-coding, tag number, location, and function.

C. Manufacturer's Installation Instructions:

1. Indicate installation instructions, special procedures, and installation.

D. Prior to Substantial Completion, submit copies of all panel schedules for review by the Owner. The Owner will note any changes to the room numbers/names and the Contractor shall provide revised typed panel schedules to reflect all changes, at no additional cost to the Owner.

1.5 ENVIRONMENTAL REQUIREMENTS

A. Install labels and nameplates only when ambient temperature and humidity conditions for adhesive are within range recommended by manufacturer.

PART 2 - PRODUCTS

2.1 NAMEPLATES

A. Product Description: Laminated three-layer plastic with engraved white letters on black background.

B. Letter Size:

1. 1/4-inch high letters for identifying individual panel or equipment.
2. 1/8-inch high letters for remaining lines with 1/8 inch spacing between lines.

C. Minimum nameplate size: 1/8 inch thick with a consistent length and height for each type of nameplate wherever installed on the project.

2.2 WIRE MARKERS

A. Power and Lighting Description: Machine printed heat-shrink tubing for all neutrals and Phase conductors.

B. Low Voltage System Description: Self-adhesive machine printed label with unique wire number that is shown on shop drawing for system.

C. Telecommunications Cable Markers: Self-laminating vinyl with translucent band and minimum 1"W x .5"H printable area with matte white finish. Brady

D. #B-427 series or approved equal.

2.3 FIRE ALARM CONDUIT AND BOX IDENTIFICATION

A. Product Description: Red spray paint for fire alarm boxes.

2.4 WORKING CLEARANCE STRIPING

A. Product description: 2” wide epoxy yellow paint with 2 inch high block letters within the clearance area to read: “ELECTRICAL CLEARANCE – NO STORAGE WITHIN THIS ZONE”.

2.5 LOW-VOLTAGE SYSTEMS ONE-LINE DIAGRAMS AND MAPS

A. Provide one-line diagrams and system maps for low-voltage and special systems, such as fire, security, telecommunications, intercom, etc. Requirements are specified in individual specification sections for each system.

PART 3 - EXECUTION

3.1 GENERAL INSTALLATION

A. Degrease and clean surfaces to receive nameplates and tape labels.

B. Install nameplates and tape labels parallel to equipment lines.

3.2 NAMEPLATE INSTALLATION

A. Secure nameplates to equipment fronts using machine screws tapped and threaded into panelboard, or using rivets. The use of adhesives is not acceptable. Machine screws to not protrude more than 1/16 inch on back side.

B. Disconnects, Starters, or Contactors:

1. Provide nameplate for each device with the following information:
   a. Line 1: Load served.
   b. Line 2: Panelboard and circuit number from which the device is fed.
   c. Line 3: Circuit amperage and poles. Where fused disconnect is installed, denote the maximum fuse size to be installed.

3.3 LABEL INSTALLATION

A. Conduit Feeder Labels - Provide conduit labels on all feeder raceways as follows:

1. Distribution Panels – “PANEL xxxx IN ROOM #xxx”.
2. Panelboards – “PANEL xxxx FED FROM MDP xxx”.

B. Spare Raceways: Provide raceway label on each individual raceway denoting the source and termination point at each end.

C. Fire Alarm Device Labels: As specified in Section 28 31 00.

D. Low-Voltage System Device Labels: Provide label on each device, denoting device ID or address where applicable. Affix label to device faceplate for ceiling-mounted devices or wall-mounted devices above 8’-0” AFF. Affix label inside backbox for exterior devices.

3.4 WIRE IDENTIFICATION

A. Provide wire markers on each conductor in panelboard gutters, pull boxes, outlet and junction boxes, and at load connection. Identification shall be as follows:

1. Markers shall be located within one inch of each cable end, except at panelboards, where markers for branch circuit conductors shall be visible without removing panel deadfront.
2. Each wire and cable shall carry the same labeled designation over its entire run, regardless of intermediate terminations.
3. Color code phases, neutral, and ground per NEC requirements and Section 26 05 19.
4. Color-code all low-voltage system wires and cables in accordance with the individual sections in which they are specified.
5. For power and lighting circuits, identify with branch circuit or feeder number.
6. Control Circuits: Control wire number as indicated on schematic and shop drawings.
7. Fire Alarm Circuits: Provide cable markers showing NAC or SLC loop identification number at all fire alarm junction boxes and pullboxes.
8. Provide cable markers on each cable, indicating device designation (e.g. “Camera 27”) for all security, intercom, door control, and video systems. Cables shall be labeled at each end, as well as at any intermediate junction boxes or pullboxes.

B. Provide pull string markers at each end of all pull strings. Marker shall identify the location of the opposite end of the pull string.

3.5 JUNCTION BOX IDENTIFICATION

A. Fire Alarm: In accessible ceiling spaces, exposed ceiling spaces, mechanical/electrical rooms, and other non-public spaces, paint fire alarm junction boxes and pullboxes with red spray paint. In all finished spaces where fire alarm boxes are visible, they shall be painted to match the surrounding finish. If there are any questions as to whether fire alarm boxes shall be painted red in a specific area, the Contractor shall get clarification from the Owner prior to painting.

B. Paint all junction boxes designated for future expansion with blue spray paint.

C. Label each lighting and power junction box with the panelboard name and circuit number.

D. Label all junction boxes for intercom, door control, and video systems with the type of system cables contained in the box.

E. For junction boxes above ceilings, mark the box cover with the circuit or system designation using permanent black marker. For junction boxes in finished areas, mark the inside of the cover with the circuit or system designation using permanent black marker.

3.6 DEVICE PLATE IDENTIFICATION

A. Label each receptacle device plate or point of connection denoting the panelboard name and circuit number.

B. Install adhesive label on the top of each plate.

3.7 LOW-VOLTAGE SYSTEM IDENTIFICATION

A. Install all labeling in accordance with the requirements of this section and of each section where the individual systems are specified.

3.8 WORKING CLEARANCE STRIPING

A. Working clearance striping paint shall be applied in front of panels located in mechanical rooms, electrical rooms, storage rooms, and other non-public areas with exposed concrete floors.

B. Striping paint shall not be applied in front of panels located in corridors and other public spaces, or spaces with finished floor surfaces (e.g., carpet, tile, vinyl, etc.).

END OF SECTION

SELECTIVE ELECTRICAL DEMOLITION

PART 1 - GENERAL

1.1 RELATED DOCUMENT

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

B. Notification of Potential Hazards: Asbestos, lead and other potentially hazardous materials are present in the building that may impact the work of all trades. Regulated air contaminants, including asbestos and lead, are also present in settled and concealed dust in and on architectural, structural, mechanical and electrical components or systems throughout the building. All trades shall coordinate with other trades and conduct their work to prevent worker exposure or site contamination. Refer to Specification Divisions 0, 1 and 2 for specific information concerning disturbing, removing and disposing of these materials and the installation of new materials or components. This notification is provided in accordance with EPA and OSHA requirements.

C. Notification of Child Occupied Facility: Portions of this building are classified as a Child Occupied Facility in accordance with 40 CFR 745 and lead-based paints may be present on components to be disturbed in those areas. Personnel performing work in these areas must comply with the requirements of 40 CFR 745, including training, work practices and cleaning of the work area. Refer to Specification Divisions 0, 1 and 2 for specific information concerning disturbing, removing and disposing of lead materials and the installation of new materials or components. This notification is provided in accordance with EPA and OSHA requirements.

1.2 SECTION INCLUDES

A. Electrical demolition.

1.3 RELATED SECTIONS

A. Division 1 - Alteration Project Procedures.

B. Division 2 - Minor Demolition for Remodeling.

PART 2 - PRODUCTS

2.1 MATERIALS AND EQUIPMENT

A. Materials and equipment for patching and extending work: As specified in individual Sections.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verify that abandoned wiring and equipment serve only abandoned loads.

B. Demolition Drawings are based on casual field observation and existing record documents. Report discrepancies to Owner before disturbing existing installation.

C. Beginning of demolition means installer accepts existing conditions.

3.2 PREPARATION

A. Disconnect electrical systems in walls, floors, and ceilings scheduled for removal.

B. Coordinate utility service outages with Utility Company.

C. Provide temporary wiring and connections to maintain existing systems in service during construction. When work must be performed on energized equipment or circuits, use personnel experienced in such operations.

D. Existing Electrical Service: Maintain existing system in service until new system is complete and ready for service. Disable system only to make switchovers and connections. Obtain permission from Owner at least 24 hours before partially or completely disabling system. Minimize outage duration. Make temporary connections to maintain service in areas adjacent to work area.

E. Existing Fire Alarm System: Maintain existing system in service until new system is accepted. Disable system only to make switchovers and connections. Notify Owner and local fire service at least 24 hours before partially or completely disabling system. Minimize outage duration. Make temporary connections to maintain service in areas adjacent to work area.

F. Existing Telephone System: Maintain existing system in service until new system is complete and ready for service. Disable system only to make switchovers and connections. Notify Owner and Telephone Utility Company at least 24 hours before partially or completely disabling system. Minimize outage duration. Make temporary connections to maintain service in areas adjacent to work area.

3.3 DEMOLITION AND EXTENSION OF EXISTING ELECTRICAL WORK

A. Demolish and extend existing electrical work under provisions of Division 1, Division 2, and this Division.

B. Remove, relocate, and extend existing installations to accommodate new construction.

C. Remove abandoned wiring to source of supply.

D. Remove exposed abandoned conduit, including abandoned conduit above accessible ceiling finishes. Cut conduit flush with walls and floors, and patch surfaces.

E. Where abandoned conduit is installed below existing slab not scheduled for demolition, remove the conductors, cut conduit flush with floor, and patch surface.

F. Disconnect abandoned outlets and remove devices. Remove abandoned outlets if conduit servicing them is abandoned and removed. Provide blank cover for abandoned outlets which are not removed.

G. Disconnect and remove abandoned panelboards and distribution equipment.

H. Disconnect and remove electrical devices and equipment serving utilization equipment that has been removed.

I. Disconnect and remove abandoned luminaires. Remove brackets, stems, hangers, and other accessories.

J. Repair adjacent construction and finishes damaged during demolition and extension work. T-bar ceiling tiles damaged under normal construction conditions or having voids where junction boxes were removed shall be replaced by the Contractor.

K. Maintain access to existing electrical installations which remain active.

L. Extend existing installations using materials and methods as specified.

M. Where materials or equipment are to be turned over to Owner or reused and installed by the Contractor, it shall be the Contractor's responsibility to maintain condition of materials and equipment equal to the existing condition of the equipment before the work began. Repair or replace damaged materials or equipment at no additional cost to the Owner.

N. Relocate existing lighting fixtures as indicated on Drawings. Test fixture to see if it is in good working condition before installation at new location.

3.4 EXISTING PANELBOARDS

A. Ring out circuits in existing panel affected by the Work. Where additional circuits are needed, reuse circuits available for reuse and install new circuit breakers.

B. Tag unused circuits as spare.

C. Where existing circuits are indicated to be reused, use sensing measuring devices to verify circuits feeding Project area or are not in use.

D. Remove existing wire no longer in use from panel to equipment.

E. Provide new updated directories where more than three circuits have been modified or rewired.

3.5 CLEANING AND REPAIR

A. Clean and repair existing materials and equipment which remain or are to be reused.

B. Panelboards: Clean exposed surfaces and check tightness of electrical connections. Replace damaged circuit breakers and provide closure plates for vacant positions.

3.6 INSTALLATION

A. Install relocated materials and equipment under the provisions of Division 1.

END OF SECTION

WIRING DEVICES

PART 1 - GENERAL

1.1 RELATED DOCUMENT

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

B. Notification of Potential Hazards: Asbestos, lead and other potentially hazardous materials are present in the building that may impact the work of all trades. Regulated air contaminants, including asbestos and lead, are also present in settled and concealed dust in and on architectural, structural, mechanical and electrical components or systems throughout the building. All trades shall coordinate with other trades and conduct their work to prevent worker exposure or site contamination. Refer to Specification Divisions 0, 1 and 2 for specific information concerning disturbing, removing and disposing of these materials and the installation of new materials or components. This notification is provided in accordance with EPA and OSHA requirements.

C. Notification of Child Occupied Facility: Portions of this building are classified as a Child Occupied Facility in accordance with 40 CFR 745 and lead-based paints may be present on components to be disturbed in those areas. Personnel performing work in these areas must comply with the requirements of 40 CFR 745, including training, work practices and cleaning of the work area. Refer to Specification Divisions 0, 1 and 2 for specific information concerning disturbing, removing and disposing of lead materials and the installation of new materials or components. This notification is provided in accordance with EPA and OSHA requirements.

1.2 SECTION INCLUDES

A. Receptacles.

B. Device plates and box covers.

1.3 RELATED SECTIONS

A. The Work under this section is subject to requirements of the Contract Documents including the General Conditions, Supplementary Conditions, and sections under Division 1 - General Requirements and Section 26 05 00 – Common Work Results for Electrical.

B. Section 26 05 26 – Grounding and Bonding for Electrical Systems

C. Section 26 05 33 – Raceway and Boxes for Electrical Systems

D. Section 26 05 53 – Identification for Electrical Systems

1.4 REFERENCE STANDARDS

A. FS W-C-596 – Federal Specification for Electrical Power Connector, Plug, Receptacle, and Cable Outlet.

B. NEMA WD 1 - General Color Requirements for Wiring Devices

C. ANSI/NEMA WD 6 – Wiring Devices – Dimensional Requirement

D. UL 498 - Attachment Plugs and Receptacles

E. UL 943 – Ground-Fault-Circuit-Interrupters

1.5 SUBMITTALS

A. Product Data: Submit product data for all components provided that are specified in this section showing configurations, finishes, and dimensions. Each catalog sheet should be clearly marked to indicate exact part number provided, including all options and accessories.

1.6 CLOSEOUT SUBMITTALS

A. Project Record Drawings: Indicate actual locations of all wiring devices on the project record drawings.

PART 2 - PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS - RECEPTACLES

A. Hubbell.

B. Leviton.

C. Pass & Seymour.

D. Substitutions: Under provisions of Division 1.

2.2 RECEPTACLES

A. Convenience and Straight-blade Receptacles: UL 498, NEMA WD 1 and Federal Specification FS W-C-596 industrial grade receptacle.

B. Locking-Blade Receptacles: NEMA WD 5.

C. Convenience Receptacle Configuration: NEMA WD 1; Type 5-20R, white nylon face.

D. Specific-use Receptacle Configuration: NEMA WD 1 or WD 5; type as indicated on Drawings, black phenolic face.

E. GFCI Receptacles: 20A, duplex convenience receptacle with integral class ‘A’ ground fault current interrupter, LED indicator lamp, and integral lockout function.

F. Tamper-Resistant Receptacles: Complying with the requirements of UL 498 (section 131) and NEC 406.12-14.

G. Weather-Resistant Receptacles: Listed to the weather-resistant supplement of UL498 and complying with the requirements of NEC 406.9.

2.3 ACCEPTABLE MANUFACTURERS – DEVICE PLATES

A. Hubbell.

B. Leviton.

C. Pass & Seymour.

D. Mullberry.

E. Red Dot.

F. Raco.

G. Substitutions: Under provisions of Division 1.

2.4 DEVICE PLATES

A. Decorative Cover Plate: Smooth 430 or 302 stainless steel with metal, counter sunk screws to match device plate.

B. Weatherproof Cover Plate: UL listed, cast aluminum, hinged outlet cover/enclosure, with gasket between the enclosure and the mounting surface, suitable for wet locations while in use.

C. Exposed Work Cover Plate: ½ inch raised, square, pressed, galvanized or cadmium plated steel cover plate supporting devices independent of the outlet box.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Install convenience receptacles 18 inches above floor, 4 inches above counters or backsplash, grounding pole on bottom.

B. Classrooms: Install tamperproof receptacles at all locations shown on the Drawings and as required by NEC 406.14.

C. Install specific-use receptacles at heights shown on Contract Drawings.

D. Unless otherwise noted, mounting heights are for finished floor to center line of outlet.

E. Install decorative plates on receptacles and blank outlets in finished areas. Use midsize or jumbo plates for outlets installed in masonry walls, where required to cover up imperfections in the wall opening.

F. Install galvanized steel plates on outlet boxes and junction boxes in unfinished areas, above accessible ceilings, and on surface-mounted outlets.

G. Install devices and wall plates flush and level.

H. Ground receptacles to boxes with a ground wire. Grounding through the yoke or screw contact is not an acceptable alternate to the ground wire.

I. Install circuit label on each receptacle and light control device in accordance with Section 26 05 53.

END OF SECTION

LIGHTING

PART 1 - GENERAL

1.1 EXAMINATION

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this section.

B. Notification of Potential Hazards: Asbestos, lead and other potentially hazardous materials are present in the building that may impact the work of all trades. Regulated air contaminants, including asbestos and lead, are also present in settled and concealed dust in and on architectural, structural, mechanical and electrical components or systems throughout the building. All trades shall coordinate with other trades and conduct their work to prevent worker exposure or site contamination. Refer to Specification Divisions 0, 1 and 2 for specific information concerning disturbing, removing and disposing of these materials and the installation of new materials or components. This notification is provided in accordance with EPA and OSHA requirements.

C. Notification of Child Occupied Facility: Portions of this building are classified as a Child Occupied Facility in accordance with 40 CFR 745 and lead-based paints may be present on components to be disturbed in those areas. Personnel performing work in these areas must comply with the requirements of 40 CFR 745, including training, work practices and cleaning of the work area. Refer to Specification Divisions 0, 1 and 2 for specific information concerning disturbing, removing and disposing of lead materials and the installation of new materials or components. This notification is provided in accordance with EPA and OSHA requirements.

1.2 WORK INCLUDED

A. Exterior luminaires and accessories.

B. Interior luminaires and accessories.

C. LED arrays and Drivers.

D. Lighting control devices including occupancy sensor.

1.3 RELATED WORK

A. The work under this section is subject to the requirements of the Contract Documents including the General Conditions, Supplementary Conditions, and sections under Division 1 General Requirements, and Section 26 05 00 – Common Work Results for Electrical.

B. Division 9 – Finishes.

1.4 SUBMITTALS

A. Product Data for each Luminaire type: Submit the following:

1. Luminaire Information: Provide manufacturer’s product data sheets and/or shop drawings including outline diagrams with support points, weights, and accessory information. Include information on LED array and driver.

1.5 CLOSEOUT SUBMITTALS

A. Project Record Drawings: Indicate locations and aiming directions for each luminaire.

B. Operations and Maintenance Manuals:

1. Provide detailed Bill of Materials for all items purchased in this section including distributor's contact name, phone number, and pertinent information.
2. Provide luminaire manufacturer's installation instructions.
3. Include any specific warranty information provided by the manufacturer for luminaire including LED's and drivers.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Deliver products to site.

B. Store and protect under provisions of Division 1.

1.7 EXTRA STOCK

A. None required.

PART 2 - GENERAL

2.1 LUMINAIRES AND ACCESSORIES

A. Luminaires: Provide UL listed luminaires as scheduled on the Drawings or as approved equal.

B. Listing: Luminaires shall be listed for use in the environment in which they are installed. For example, luminaires installed in wet or damp locations shall be UL listed for such application.

C. Accessories: Provide all mounting kits, supports, interconnecting wiring, power supplies, trim kits, gaskets, etc. for a complete installation.

2.2 CONTROL DEVICES

A. Provide devices shown on Drawings and in an enclosure and version suitable for the application installed (wet, damp, cold, etc.).

B. Photocell shall have an adjustable range and be UL listed for wet locations and suitable for cold climate.

C. Wall occupancy sensor shall be dual technology type covering the room. Provide additional detectors) as needed for full rom coverage.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Install all supports and raceway prior to installation of luminaires.

B. Unless otherwise noted on Plans, provide driver integral to luminaires, pre-wired and installed at the factory.

C. Support surface mounted luminaires in accordance with manufacturer's instructions.

D. Luminaire Components: In UL listed enclosures. Exterior luminaires shall be rated to -20-degree F or colder.

E. Install occupancy sensor and wall switches 48 inches above floor, OFF position down.

F. Unless otherwise noted install wall switches within 6 inches of the door jamb on the strike side.

3.2 ADJUSTING

A. Coordinate exterior flood light aiming with Project Manager during installation. Make note of aiming angles for inclusion in O&M materials.

B. Test and adjust occupancy sensor ranges to reduce nuisance switching.

C. Clean luminaires and lenses from paint splatters, dirt, debris at completion of the Work.

END OF SECTION

PATHWAYS FOR COMMUNICATIONS SYSTEMS

PART 1 - GENERAL

1.1 RELATED DOCUMENT

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

B. Notification of Potential Hazards: Asbestos, lead and other potentially hazardous materials are present in the building that may impact the work of all trades. Regulated air contaminants, including asbestos and lead, are also present in settled and concealed dust in and on architectural, structural, mechanical and electrical components or systems throughout the building. All trades shall coordinate with other trades and conduct their work to prevent worker exposure or site contamination. Refer to Specification Divisions 0, 1 and 2 for specific information concerning disturbing, removing and disposing of these materials and the installation of new materials or components. This notification is provided in accordance with EPA and OSHA requirements.

C. Notification of Child Occupied Facility: Portions of this building are classified as a Child Occupied Facility in accordance with 40 CFR 745 and lead-based paints may be present on components to be disturbed in those areas. Personnel performing work in these areas must comply with the requirements of 40 CFR 745, including training, work practices and cleaning of the work area. Refer to Specification Divisions 0, 1 and 2 for specific information concerning disturbing, removing and disposing of lead materials and the installation of new materials or components. This notification is provided in accordance with EPA and OSHA requirements.

1.2 SECTION INCLUDES

A. J-Hooks.

B. Smoke and acoustical cable pathway device.

1.3 RELATED SECTIONS

A. Section 26 05 29 – Hangers and Supports for Electrical Systems.

B. Section 26 05 26 – Grounding and Bonding for Electrical Systems.

1.4 REFERENCES

A. NEMA VE 1 - Cable Tray Systems.

B. National Electric Code (NFPA 70) Article 250 - Grounding.

C. National Electric Code (NFPA 70) Article 770 - Optical Fiber Cables and Raceways.

D. National Electric Code (NFPA 70) Article 800 - Communications Circuits.

E. ANSI/TIA/EIA-568-B -- Commercial Building Telecommunications Cabling Standards.

F. BICSI Telecommunications Distribution Methods Manual - Latest published edition.

G. UL Standards - UL 94HB, UL 723, and UL 2043.

1.5 SUBMITTALS

A. Submit shop drawings and product data under provisions of Division 1.

B. Indicate cable support type, dimensions, support points, and finishes.

C. Submit manufacturer's installation instructions under provisions of Division 1.

1.6 OPERATION AND MAINTENANCE DATA

A. Submit operation and maintenance data under provisions of Division 1.

B. Include cleaning and bolt-tightening procedures for cable tray.

1.7 PROJECT RECORD DRAWINGS

A. Record actual routing of cable tray on “As-built” drawings.

PART 2 - PRODUCTS

2.1 J-HOOKS

A. All cables not installed in conduit shall be supported using Caddy CableCat series or approved equal J-hooks with galvanized finish. J-hooks shall have a cable retainer strap to provide containment of cables within the hanger. The cable retainer strap shall be removable and reusable and be suitable for use in air handling spaces. The minimum J-hook size shall be equivalent to Caddy #Cat32. Size all J-hooks to support the quantity of cables installed, plus a minimum of 25% spare capacity. Fiber optic cables shall be routed in 1” innerduct that is supported on a separate J-hook above the J-hook supporting the copper cables.

2.2 SMOKE AND ACOUSTICAL CABLE PATHWAY DEVICE

A. UL Classified enclosed smoke and acoustical pathway device with built-in fire sealing system, suitable for installation in non-rated walls. The self- contained sealing system shall automatically adjust to the installed cable loading and shall permit cables to be installed or removed without the need to adjust, remove, or reinstall firestop materials. Provide all associated brackets and fittings for a complete installation. STI “EZ-PATH Series NEZ33” system or approved equal. Provide pathway devices at cable tray transitions into Telecom Room TR2 (Storage 102A). Quantity of pathway devices shall be as required for the number of cables entering the telecom room, plus 25% spare capacity for future expansion.

PART 3 - EXECUTION

3.1 INSTALLATION – GENERAL

A. Provide continuous pathway system for all low voltage cable systems. Where multiple cable systems (e.g. telecom, security, intercom) are installed along the same J-hook pathway, provide separate J-hooks for each system. J-hooks may utilize the same vertical support.

B. Coordinate all pathway runs with other trades prior to installation. Report conflicts to ASD Project Manager.

C. Maintain a minimum EMI separation clearance of at least 6-inches.

D. Support pathway from building to support structure or sub structure in accordance with Section 26 05 29. Do not support pathway from ceiling tiles, ceiling grid, hanger wires, ductwork, piping, or other equipment hangers that are not part of the cable pathway support system.

E. In classrooms and other areas with accessible ceilings where cable is not installed in cable tray, provide J-hooks spaced every 4 to 5 feet, varying the distance between each support.

F. Provide a minimum of 12 inches headroom above all types of cable supports.

G. Provide a minimum of 3 inches clear vertical space above ceiling system at cable lowest point.

H. Provide cable support within 18 inches of each transition of pathway system types. This includes transitioning from any one to any other of the following cable support systems such as raceway, sleeves, chases, cable trays, cable runways, or J-hooks.

I. Set J-hooks so that changes in direction do not exceed 45 degrees.

J. Install firestopping in accordance with Division 7 to sustain ratings when passing cable tray through fire-rated elements.

END OF SECTION

SECURITY SYSTEM

PART 1 - GENERAL

1.1 DESCRIPTION OF WORK

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

B. Notification of Potential Hazards: Asbestos, lead and other potentially hazardous materials are present in the building that may impact the work of all trades. Regulated air contaminants, including asbestos and lead, are also present in settled and concealed dust in and on architectural, structural, mechanical and electrical components or systems throughout the building. All trades shall coordinate with other trades and conduct their work to prevent worker exposure or site contamination. Refer to Specification Divisions 0, 1 and 2 for specific information concerning disturbing, removing and disposing of these materials and the installation of new materials or components. This notification is provided in accordance with EPA and OSHA requirements.

C. Notification of Child Occupied Facility: Portions of this building are classified as a Child Occupied Facility in accordance with 40 CFR 745 and lead-based paints may be present on components to be disturbed in those areas. Personnel performing work in these areas must comply with the requirements of 40 CFR 745, including training, work practices and cleaning of the work area. Refer to Specification Divisions 0, 1 and 2 for specific information concerning disturbing, removing and disposing of lead materials and the installation of new materials or components. This notification is provided in accordance with EPA and OSHA requirements.

1.2 SECTION INCLUDES

A. Contractor designed and installed addressable security control system.

B. Security system wire and cable.

C. Security system identification and labeling.

D. Security System Testing.

1.3 RELATED WORK

A. Section 23 09 93 – Sequence of Operations for HVAC Controls.

B. Section 26 05 33 – Raceway and Boxes for Electrical Systems.

C. Section 27 05 28 – Pathways for Communications Systems.

D. Section 26 05 53 –Identification for Electrical Systems.

1.4 SUMMARY OF WORK

A. Provide all equipment, materials, labor, documentation and services necessary for reconnection of the existing Security System disconnected during construction, as required herein and as indicated on the Drawings.

B. The system equipment and installation shall comply with all provisions and requirements of this specification, as well as any and all applicable national, state and local codes and standards.

C. All system components specified as Napco Gemini Series shall have **NO SUBSTITUTIONS ALLOWED**.

1.5 SYSTEM DESCRIPTION

A. System Components: The basic components of the Security System shall include:

1. Control Panel: Utilizes a burglary bus to connect expansion zone modules (EZMs), Output Modules, and keypads in a multidrop configuration. Control panel shall utilize a UL listed Uninterruptible Power Supply that shall be mounted in the enclosure and shall supply power to all connected EZMs, RRMs, and local field devices.
2. Digital Alarm Communicator (DACT): Integral DACT to transmit alarms over telephone lines to the central monitoring station.
3. Addressable field devices (motion/glassbreak sensors) and addressable relay modules connected to door contacts shall be connected to the panel via the panel's burglary SLC loop. Unless otherwise noted on the Drawings, each field device (sensor or contact) shall have a dedicated input on the security system and shall have a unique point name, as described on the Drawings. Exceptions where multiple devices are connected to a single input are as follows:

a. Multiple sets of door contacts at double doors.

1.6 SEQUENCE OF OPERATION

A. Arm / Disarm System:

1. For clarity, this section uses the terms "Arm" and "Disarm" in the description of operation. When the system is "Armed" at night, the alarm points (i.e. motion sensors or door contacts) will generate alarms when activated. When the system is "Disarmed" during normal daytime operation, the alarm points are masked and will not generate alarms when motion is detected or doors are opened.
2. System Operation: The system shall either be armed or disarmed locally by using the security keypad, typically located in the front office.
3. System Disarm: The staff will use keys to enter the building through the front doors and enter the front office area. All door contacts and motion sensors in the entry area shall be part of the Entry/Exit Follower group, which shall delay alarm activation for 90 seconds to allow the staff to get to the keypad to disarm the system. During this delay, an audible tone will sound at the keypad. After the PIN code is correctly entered, the audible tone shall stop, the green LED on the keypad shall illuminate and all alarm points shall be masked, with the exception of industrial alarms (e.g. Building Freeze, Boiler Fail, etc.). The system shall send a "System Disarmed" signal to the Central Station via the DACT. If the delay timer expires before the system is disarmed, a "Burg" alarm in the zone where the entry area is located will be transmitted to the Central Station via the DACT.
4. System Arm: After the PIN code is correctly entered, the red LED on the keypad shall illuminate and all alarm points shall be unmasked. There shall be a 90 second delay to allow the staff to exit the building. During this delay, the alarm points shall remain masked and the audible tone at the keypad shall sound. If the delay timer expires before the staff member exits the front door, a "Burg" alarm for the sensor or contact that is activated will be transmitted to the Central Station via the DACT.

5. The same arm/disarm sequence specified above also applies to alternate entrances where additional security keypads are located.
6. Corridor Lighting: When someone enters the building and disarms the system, the corridor lighting will turn on. Refer to Section 23 09 93 for the sequence of operation.

B. Industrial Alarms:

1. The building industrial alarms (i.e. Boiler Fail, Building Freeze, etc.) shall be in a non- maskable group that shall report an alarm regardless of the overall Arm/Disarm status of the system. Alarms shall be transmitted to the Central Station via the DACT and to the DDC system as shown on the Drawings.

C. Maskable Field Devices:

1. Alarm: All field devices such as door contacts, motions sensors, and glassbreak sensors shall interface with the control panel via the SLC loop. If the system is disarmed, these alarm points shall be masked and shall not report any alarms. If the system is armed, activation of any alarm point shall generate a “Burg” alarm denoting the zone (i.e. East Wing) where the device is located, along with the specific device in alarm. This signal shall be transmitted to the Central Station via the DACT.

D. System Trouble:

1. Tamper: Activation of any of the tamper switches on the control panel or EZM enclosures shall generate a “Security Trouble” alarm that is transmitted to the Central Station via the DACT.
2. Power/Battery: Trouble signals shall also be generated for AC power failure and low battery at the control panel. These signals shall be transmitted to the Central Station via the DACT.
3. Field Devices: The SLC loop is supervised, using an end-of-line (EOL) resistor. An “Open” or “Short” trouble condition on any field device shall generate a “Security Trouble” alarm that is transmitted to the Central Station via the DACT.

E. DACT Operation:

1. Keypad: The display readout on the keypad shall match the text message that is being sent to the Central Station, with additional explanatory text added to each numerical code to clearly show the alarm being generated. Example: “01 GI Fire Alarm”. All text messages shall be approved by the ASD Project Manager prior to programming the DACT.
2. Upon receipt of alarm or trouble signals from the security control panel or fire alarm panel, the DACT shall transmit these signals to the Central Station via telephone line. After the alarm or trouble condition is cleared at the security or fire alarm panel, the DACT shall automatically reset.

F. Building Automation Interface:

1. Each alarm signal generated by the building industrial alarm points shall be transmitted to the building automation control panel in the building via dedicated relay outputs on the RRMs.
2. Upon receipt of signals from the security or building automation control panels, the DACT shall transmit these signals to the Central Station via telephone line. After the alarm or trouble condition is cleared, the DACT shall automatically reset.

G. Intercom System Interface:

1. At the inner and outer main entry doors and west entry door, a person requesting entrance shall press the call button that will ring at the master stations in Reception Area. When the call is answered, the video image will appear on the screen and the door can be unlocked by a button on the masterstation.

1.7 REGULATORY REQUIREMENTS

A. All systems shall comply with applicable federal, state, and local building codes. Conduit and wire installation shall comply with all of the provisions of Division 26.

B. All equipment and assemblies shall be Underwriters Laboratories approved if applicable. All of the security system equipment, including file servers, workstations, controllers, keypads, and input/output modules shall be listed by Underwriters Laboratories as conforming to UL 1076 and UL 294.

1.8 QUALIFICATIONS

A. The Security Systems Integrator shall submit qualifications in accordance with Division 1. Qualifications shall include the following:

1. The entire security system shall be installed and programmed by a single Security Systems Integrator. The Security Systems Integrator shall be certified by Napco to install the Gemini C-Series security system.
2. Where the Security Integrator is a branch office or other division of a larger organization, the qualifications of the branch office or other division shall meet the requirements of the Contract Documents.
3. The Security Integrator shall provide documentation that at least one field installer on each project is certified by Napco to install the Gemini C-Series security system. The Contractor shall submit qualifications of the On-Site Installer prior to start of work.

1.9 SUBMITTALS

A. Submit product data under provisions of Division 1.

B. Submit under provisions of Division 1 and Division 26.

C. Provide manufacturer's data sheets on all equipment proposed for use on this project.

D. Electronic AutoCad® drawings of the building floor plans are available upon request for preparation of the shop drawings. All device locations shall be field verified by the Contractor prior to completion of the shop drawings.

E. Provide contract-size shop drawings that include the following information:

1. Locations of all equipment and field devices, as well as routing of all cables with the number and size of conductors in each run. Scale of floor plan shall match Contract Drawings.
2. Minimum 1/4-inch enlarged plan of each equipment room. Plan must be large enough to show actual equipment layouts and to show that all equipment will fit in the intended space with no conflicts.

3. Locations and sizes of all raceways, sleeves, and penetrations. Fire rated penetrations shall be specifically noted.
4. Provide a building zone map denoting the coverage areas.
5. Provide a one-line diagram for each facility that shows the signal relationships of all devices within the system.
6. Provide voltage drop calculations for the security panel, all EZM panels, the SLC burg loop, and all relay module power circuits. Provide battery calculations for the control panel, including all connected devices. Calculations shall include estimated time system will run without utility AC power in non-alarm state. All calculations shall be shown on the Drawings.
7. For each major component, such as the control panel or EZM, show a typical detail of all wiring connections to the equipment. This detail shall include all wire/cable color- coding and all identification tags where applicable.
8. Indicate electrical characteristics and connection requirements, including line voltage and low voltage wiring, and logic diagrams or block diagrams where required. All text on the drawings shall be legible without magnification when the shop drawings are reduced to 11” x 17”.
9. Shop drawings denoting all details of the security system must be submitted and approved by ASD prior to commencement of installation.

F. Points List: The Contractor shall provide a points list in MS Excel format that shows all new input and output points on the system. The list shall include one field for the unique point identification scheme as specified on the Drawings, as well as a separate field for a more detailed descriptive ID (up to 32 characters) that appears on the keypad and is transmitted to the Central Station. Prior to submittal, the Contractor shall coordinate with ASD for questions related to the naming convention.

1.10 PROJECT RECORD DRAWINGS

A. Submit documents under provisions of Division 1.

B. Accurately indicate actual location of all security devices and controlling equipment, including the control panel, EZM and relay modules, power supplies, magnetic contacts, glassbreak sensors, relays, electric door locks, etc. All field devices shall be shown with their actual device addresses.

C. Show the location and routing of all conduit and cables, including locations of major pull and junction boxes.

D. Include a reduced set (11" x 17") set of the project record drawings in the Operation and Maintenance Manual.

E. After review and approval of the Project Record Drawings by the Owner, the Contractor shall provide the following documents:

1. One 8.5” x 11” zone map that shows each zone within the school and includes the new CTE area. Map shall be used by ASD security staff and central station monitoring company.
2. One final 11” x 17” laminated zone map that shows each zone within the school, including the new CTE area. Map shall be mounted above the keypad at the front office of the school.
3. One complete set of laminated 11” x 17” Project Record Drawings. Drawings shall be bound in a 3-ring binder and hung from a wall hook adjacent to the main ACU in the school.

1.11 OPERATION AND MAINTENANCE MANUAL

A. Submit documents under provisions of Division 1.

B. Operation and Maintenance Data: Include bound copies of operating and maintenance data with programming instructions.

C. Provide operation and maintenance instructions including detailed electronic schematic drawings, detailed parts list and exploded view of all equipment, detailed troubleshooting instructions and a reduced set of the project record drawings.

D. Provide completed copies of the System Test Reports.

E. Provide detailed instructions on system start-up, including instructions on re-starting the file server after a system failure/lock-up.

F. Program Documentation: Provide two electronic copies of the System Software Program for the facility to aid in future maintenance, troubleshooting and modification of the security system.

1.12 INSTRUCTION OF OPERATING PERSONNEL

A. In accordance with the requirements of Division 1 and this section, provide hands-on operational training for on-site facility staff. Class shall be held in Anchorage at the school, with the class duration as specified in Section 26 05 00. Training shall include basic operation of the system. At the end of each class, the participants shall be capable of arming/disarming the system and scrolling through the menus to determine where active alarm points (i.e. open doors) are located in the school. The training shall include the following elements:

1. Describe and demonstrate general system operation and layout, including the functions of the control panel, keypads, EZMs, and DACT.
2. Explain identification system, diagrams, signals and alarms.

B. Training sessions for the security system shall be conducted by the Manufacturer’s Representative.

1. Training session schedules shall conform to the requirements of the Owner.
2. Submit schedules to Owner for approval not less than two weeks prior to training session.

1.13 COORDINATION

A. The necessity to coordinate this work with ASD is emphasized. The Contractor shall be responsible for any omissions, delays and additional cost due to lack of coordination or approval from the same.

B. Coordinate all work with lighting, power, ventilation, sprinklers and other systems in the areas of work to avoid interferences.

1.14 QUALITY ASSURANCE

A. Provide complete testing of the security system in accordance with this section.

B. After installation, and before termination, all wiring shall be checked and tested to ensure there are no grounds, opens, or shorts on any conductors or shields. The Contractor shall maintain a complete log of all such quality assurance tests and make them available for inspection by the Owner at any time during the construction phase. At the completion of the installation all test results shall become part of the maintenance documentation.

C. Inspection:

1. The Contractor shall carry out the inspection requirements of the Contract and shall provide the Owner with documentation to the effect that off-site work is being properly fabricated, and in accordance with the contract documents.
2. The Contractor shall notify the Owner sufficiently in advance of the time when quality control tests are to be performed so that the Owner or their designee may witness such tests, if desired. The presence or absence of the Owner from these tests shall not relieve the Contractor from completing the tests in accordance with the contract documents. Contractors QA documentation and practices shall be subject to Engineer or Owner inspection at any time. The field-certified installer must be present during final testing and calibration.

1.15 WARRANTY

A. Warrant all materials and equipment to be new and free from defects in material and workmanship for a period of one year under provisions of Division 1.

PART 2 - PRODUCTS

2.1 MATERIALS AND MANUFACTURERS

A. Throughout this specification, specific manufacturers and manufacturer's catalog numbers are cited. All components of the Napco Gemini C-Series security system shall be as specified with **NO SUBSTITUTIONS**, in order that they are consistent with the existing District-wide system. Where products are listed as "or approved equal", these citations are for the purpose of establishing quality and performance criteria and are not intended to be proprietary. All decisions regarding approval of non-specified manufacturers and products will be at the discretion of the ASD Project Manager.

B. Where no manufacturer is specified, provide products of manufacturers in compliance with requirements. Any item of equipment or material not specifically addressed on the drawings or in this document and required to provide a complete installation shall be provided in a level of quality consistent with other specified items.

C. All products and materials are to be new and free of defects, damage and corrosion. All materials shall be in compliance to all applicable codes and designed specifically for the function intended.

D. Quantity and location of all devices and equipment shall be as specified in Contract Documents or as required for a complete and operable system.

2.2 CONTROL PANEL

A. Existing Napco Magnum Alert 3000 Series Panel.

B. Firmware: The control panel shall be provided with the most current version of the firmware.

C. Integral DACT: U.L. 864 listed digital alarm communicator capable of transmitting an alarm condition by zone, a trouble condition by zone, or a supervisory alarm over telephone lines to a central station receiver. Communicator shall be configured to match existing ASD communication protocols and shall provide annunciation at the central station receiver to match output from existing Napco security systems in ASD facilities.

D. Battery Backup: Control panel shall have a UL Listed uninterruptible power supply (UPS) mounted within the enclosure to provide normal operation for all connected equipment for a minimum of four (4) hours of normal operation. Clock circuit shall have dedicated on-board backup battery.

E. Control panel enclosure shall have tamper switch and flushlock keyed to the CAT-60 standard to match all other security system cabinets.

F. Enclosure shall have a custom termination drawing/point list affixed to the inside panel front that shows connection details of each EZM/RRM, as well as all local input/output points. The documentation shall be specific to each cabinet.

2.3 EXPANSION ZONE MODULE (EZM)

A. Napco #GEMC-EZM8

B. Each EZM shall support 8 supervised input points.

C. The EZM enclosure shall have an integral tamper switch.

D. Quantity and locations of all EZMs shall be as specified in the Contract Documents or as required for a complete and operable system.

2.4 RELAY MODULE

A. Napco #GEMC-RM3008

B. Each module shall support eight outputs using industry standard dry contact output relays with LED indicators

C. Each module shall be powered by the on-board UPS of the control panel.

D. Module shall have tamper switch on cover.

E. Quantity and locations of all modules shall be as specified in the Contract Documents or as required for a complete and operable system.

2.5 SECURITY INPUT DEVICES

A. Magnetic Contacts:

1. Unless otherwise noted on the Drawings, all door contacts shall be recessed type.

2. Recessed Contacts: UTC/Sentrol #1078W series or approved equal UL listed N.O. contacts with flame-retardant white/natural ABS housing, hermetically sealed, potted magnetic reed switch, 12-inch #22 AWG leads, and maximum gap distance (make) of 1 inch in steel doors.
3. Overhead Door Contacts: UTC/Sentrol #2200 series or approved equal UL listed N.O. contacts with case aluminum housing, hermetically sealed, potted magnetic reed switch, 18-inch stainless steel armored cable, and maximum gap distance (make) of 3 inches.

2.6 SECURITY KEYPAD

A. Mount a minimum 1/16” scale facility map in a frame with a clear acrylic cover, next to the main keypad in the front office. Map shall be labeled to correspond to the information displayed at the keypad annunciator. Submit a copy of the map for approval prior to installation.

B. System Arm/Disarm Instructions: Provide laminated 8.5”x11” instruction sheet to arm/disarm the security system using the keypad. Coordinate with ASD Project Manager for exact text and format of instruction sheet prior to submittal.

2.7 SECURITY SYSTEM WIRE AND CABLE

A. Multi-Drop RS-485 Communications Cable: Belden #82842 or approved equal plenum-rated, 2-pair, 24 AWG, stranded tinned copper conductors, individually twisted pairs, 100% braided overall shield, drain wire, 300-Volt insulation, rated 90º C, with an overall plenum jacket.

B. Multi-Drop Power Cable: West Penn #25224 or approved equal plenum-rated, 1-pair, 18 AWG, stranded tinned copper conductors, unshielded twisted pair, 300-Volt insulation, rated 90º C, with an overall plenum jacket.

C. Door Contact/Alarm Input Cable: West Penn #25222 or approved equal 1-pair, 20 AWG, twisted, unshielded, stranded tinned copper conductors, 300-Volt FEP insulation, rated 90º C, with an overall plenum jacket.

D. Relay Output Cable: West Penn #25225 or approved equal 1-pair, 16 AWG, twisted, unshielded, stranded tinned copper conductors, 300-Volt FEP insulation, rated 90º C, with overall plenum jacket.

E. Interconnect Cable: Plenum-rated, 18 AWG, twisted, shielded or unshielded (as required or recommended by manufacturer), stranded tinned copper conductors, 300-Volt FEP insulation, rated 90º C, and plenum jacket. Pair count as required to provide connections for all specified points between DDC and security system.

2.8 SECURITY SYSTEM LABELING

A. Provide nameplates, labels, and wire markers as specified in Section 26 05 53.

2.9 SECURITY SYSTEM TEST REPORTS

A. Report Criteria: After each test, promptly submit one copy of report to ASD. Include information on the ASD report form where included within this specification otherwise provide form with the minimum following information:

1. Date issued.
2. ASD Project title and number.
3. Name and Model of Tester and witnesses.
4. Date and time of sampling or inspection.
5. Identification of product and specifications section.
6. Type of inspection or test.
7. Date of test.
8. Results of tests.
9. Indicate compliance or non-compliance with Contract Documents.
10. Final adjustment setting values where applicable.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Prior to beginning equipment installation, examine areas to receive access control equipment. Verify that all conditions are acceptable.

3.2 INSTALLATION

A. General:

1. Install all equipment in accordance with the manufacturer's instructions and drawings. Coordinate locations of all sensors and magnetic contacts to provide optimum performance in the associated area.
2. Keep up to date "As-built" record drawings at each job site detailing the layout and field modifications to the Shop Drawings. Update the Shop Drawing electronic copy with the field red-lined changes.
3. Unless otherwise noted on the Drawings, the control panel and other control equipment shall be mounted where they are accessible for maintenance and testing. Panels shall not be mounted above accessible ceilings. The maximum mounting height to the top of the enclosure shall be +8’-0” AFF or 6” below the ceiling, whichever is lower.
4. Pathway Separation Clearances:

    a. Provide 3” minimum clearance from bottom of security system pathway to ceiling tile and T-bar ceiling and 12 inches clear space above cable trays for access.
    b. Do not route security system cables adjacent and parallel to unshielded and ungrounded power cabling.

5. Do not route raceways over or adjacent to boilers.

B. Environmental Conditions:

1. Components mounted in locations exposed to weather shall be housed in corrosion resistant enclosures with appropriate environmental protection. Component performance shall not degrade because of improper housing design. Components in enclosures shall meet manufacturer's performance requirements when exposed to the ambient conditions beyond manufacturer's limits. If required, Contractor shall provide heaters in enclosures.

C. All work shall conform to the National Electrical Contractors Association "Standard of Installation".

D. Door Contacts: Secure the magnet side of recessed door contacts in the door, using metal mounting brackets as required. Magnet shall not be mounted on a wood spacer block to make it flush with the top of the door.

3.3 SYSTEM WIRING

A. No wiring other than that directly associated with Security System shall be permitted in Security System conduits and pathways.

B. Cables to be installed in raceway, cable tray, or J-hooks the entire length of each cable. In all locations where devices are installed in inaccessible ceilings or concealed in walls (i.e. door contacts, motion sensors), utilize signal cable in raceway from the device to the area above the accessible grid ceiling.

C. Unless otherwise noted in the Contract Documents, install a dedicated cable to each individual field device.

D. Install 1-foot cable service loop for all security system cable at the last J-hook nearest the raceway down to the device, or as near as possible to the device when J-hooks are not installed.

E. Wiring splices are to be avoided to the extent possible, and if needed they must be made only in junction boxes and shall be crimp connected. Wire nut-type connections are not acceptable.

3.4 SYSTEM LABELING

A. Install nameplates and labels parallel to equipment lines.

B. Secure nameplate with pop rivets or brass machine screws tapped and threaded to cabinet. Machine screws shall not protrude more than 1/16 inch on back side.

1. Provide nameplate for each control panel with the following information:

a. Line 1: Unique control panel name as shown on the shop drawings.
b. Line 2: System description (Security).
c. Line 3: Panelboard and circuit number from which the control panel is fed (if applicable).

C. Provide label on each security field device, denoting device address. Affix label to device faceplate for ceiling-mounted devices or wall-mounted devices above 8’-0” AFF. Affix label inside backbox for exterior devices.

D. Install wire marker for each cable at cabinets, pull boxes, junction boxes, and each load connection. Wire ID number to match at each end.

3.5 EQUIPMENT CONNECTION AND CONFIGURATION

A. DACT: Configure the DACT to report to the designated Central Monitoring Station using 'SIA' communications protocol. The Contractor is responsible for all materials, labor, and programming required to accomplish this, at no additional cost to the Owner. All alphanumeric names used in the DACT program shall utilize the ASD pre-approved naming scheme, as indicated on the point list on the Drawings.

3.6 FIELD QUALITY CONTROL AND TESTING

A. During the initial installation, testing, programming, and configuration of the security system, all alarm, trouble and event signals, and any other outputs from the system shall be routed separately from the normally monitored ASD alarms, events and troubles. The Contractor shall review and clear the alarm log daily during testing and setup. The intent is that the operation of the existing district-wide security system shall not be impeded by any alarms, troubles and event signals generated during the initial installation, testing, programming, and configuration process of the new security system.

B. Perform a 100% Device Test on each new device point and circuit for proper operation.

1. Test each new set of magnetic contacts for proper operation and contact closure.
2. Test and toggle each industrial point for proper operation.
3. Test keypads for proper operation.

C. Verify that activation of all field devices noted above will properly annunciate at the keypad, trip the associated relay on the relay module, send an alarm signal to the DACT, and then transmit to the Central Station. Record all results on the ASD Security System Testing Form, which can be provided by ASD upon request.

D. Prior to testing the DACT transmitting functions, the Contractor shall notify both ASD and the Central Station (Guardian Security) in writing via email or fax for testing periods more than 4 hours. For testing periods less than 4 hours, notification shall be done by phone. The intent is that the Central Station can ignore the incoming events during the testing phase.

E. If the building is occupied during the testing phase, provide initial basic training to school administrative staff, BPO, lead night custodian, Contractor, and the ASD Project Manager on arming and disarming the system. This training does not count toward the formal Owner training specified in this section.

3.7 SYSTEM BREAK-IN PERIOD

A. After Substantial Completion, the Security Systems Integrator shall be the initial point of contact for all alarm and trouble calls generated for a period of 7 days. The Security Systems Integrator shall provide a contact phone number with 24-hour attendance and shall respond to the project site within 60 minutes of being notified of an alarm or trouble condition.

B. The Contractor shall provide a daily written summary to the ASD Project Manager of the security system events from the previous evening including all arming, disarming, alarms, troubles, and any other events generated by the security system.

C. Once the ASD Project Manager deems the system stable and operational, the Contractor will be removed as the first responder and ASD and Guardian Security will accept responsibility for monitoring the system.

D. At any time during the break-in period, if the security system does not provide reliable operation or malfunctions, the Contractor will provide an on-site security guard at no additional cost to the Owner.

3.8 SYSTEM DEMONSTRATION

A. Demonstrate to the ASD Project Manager the system can Arm and Disarm.

B. Demonstrate system alarm reporting to the Central Station via the DACT. Test each zone on the system and verify that the signal is correctly received at the monitoring station and that the identification of the zone matches the identification at the keypad.

C. Confirm security system operation under simulated utility power outage. Confirm Central Station receives alarms via the DACT.

D. Demonstrate properly restricted operator privileges by logging in as an Operator and demonstrating operation.

END OF SECTION